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SUPERSEDING

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MILITARY SPECIFICATIONS

MAPPING, CHARTING AND GEODESY (MC&G) VIDEO DISC

1. SCOPE

1.1 Scope. This specification defines the requirements for the Defense Mapping Agency's (DMA) MC&G Video Discs and associated indexing database.

1.2 Purpose. The purpose of this specification is to enable all elements engaged in production and maintenance programs for MC&G video disc products, to produce and maintain uniform standards of production.

1.3 Security.

1.3.1 Security classification. The security classification of the products generated by the use of these specifications will be the lowest category practicable. When necessary to assign security classifications to the product, it will be accomplished in accordance with national security procedures.

1.3.2 Product classification. DMA's MC&G video disc and database range in classification from UNCLASSIFIED to SECRET. The following defines security, control and release markings.

1.3.2.1 Video disc.

a. The first and last frames (see 6.3.18) of each video disc (see 6.3.76) shall be marked with the proper security classification and control release markings, per Defense Intelligence Agency Manual 65-19, Standard Security Markings, (DIA, Attn:RTS-2C, Washington, D.C. 20340) for the most highly classified material on the video disc.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Director, Defense Mapping Agency, ATTN: PR, 8613 Lee Highway, Fairfax, VA 22031-2137 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

AREA MCGT

DISTRIBUTION STATEMENT A. Approved for public release; distribution unlimited.

This information shall be displayed the first time a video disc is accessed. Each image on a video disc map does not have to be so marked, since the classification will always appear on the computer system monitor whenever a map or map-related image is accessed.

b. Security markings (first and last frame) shall be used as follows:

(1) Unclassified video discs shall have a light green (DOD-MC&G printing color #54314 or equivalent color) background with the word "UNCLASSIFIED" printed in white across the center of the frame.

(2) Confidential video discs shall have a dark blue (DOD-MC&G printing color #46961 or equivalent color) background with the word "CONFIDENTIAL" printed in white across the frame.

(3) Secret video discs shall have a red (DOD-MC&G printing color #60853 or equivalent color) background with the word "SECRET" printed in white across the frame.

c. Confidential and secret frames shall also have printed in white the classification authority and declassification instructions, and control and release markings. Additional details on classification markings are provided in Defense Intelligence Agency Manual 65-19, Standard Security Markings.

d. The classification of an image on a video disc shall be displayed on the system display whenever its corresponding classified image is displayed on the video monitor. Proper safeguarding of the disc, related data, and reproduction, therefrom, are the responsibility of the user.

1.3.2.2 Database.

a. Whenever the map data files contain classified material, the following message shall be displayed on the system monitor: "The data contained on this diskette/tape is classified (security classification) and shall be treated as such." This information shall appear before accessing the classified data for the video disc; also on the screen is the security classification for the database information, the classifying authority, and downgrading instructions.

b. If a title, series, sheet number/sheet name itself is classified, then the characters (S), or (C) indicating "SECRET", or "CONFIDENTIAL", respectively, shall precede the first letter or number of the title, series, sheet number/sheet name.

c. The security classification of images from video discs shall be displayed on the system monitor whenever the images are displayed on the video monitor.

1.3.2.3. Video Disc Jacket Cover, Diskette Label, Video Disc Labels, Tape Labels. See Appendix B (Video Disc Product Style Sheets).

2. APPLICABLE DOCUMENTS

2.1 Government Documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.6).

a. Military Standards. MIL-STD-600010, Military Standard DMA Stock Number/Bar Coding.

(Unless specified otherwise, copies of federal and military specifications, standards, and handbooks are available from the Naval Publication and Forms Center (ATTN: NPODS), 5801 Tabor Avenue, Philadelphia, PA 19120-5099.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

a. VIDEOMAP User's Manual, DMAHTC, VLDUMTXMANUAL, June 1987

b. Defense Intelligence Agency Manual 65-18, Geopolitical Data Elements and Related Features

c. Defense Intelligence Agency Manual 65-19, Standard Security Markings.

d. Standard Printing Color Catalog for Mapping, Charting, Geodetic data and Related Products, DMA, March 1972.

2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.6).

a. National Television Standards Committee (NTSC) Standard.

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 MC&G Video Disc.

3.1.1 Physical characteristics.

a. Are 30.5 cm (12") plastic optical discs, capable of storing up to 54,000 video (analog) images per side (equivalent to approximately 200 medium sized map sheets). The side(s) containing the images possesses a silver-colored reflective quality.

b. Follow National Television Standards Committee (NTSC) (see 6.3.56) format, the television standard used in the United States.

c. Operate on laser video disc players. Data stored and later retrieved with laser; thus, terms "optical" or "laser" video disc. (Images permanently recorded in spiralling tracks of microscopic pits beneath transparent protective outer surface of plastic. The laser beam, located in video disc player, moves along track filled with pre-recorded pits. When the beam falls on the flat surface, light is reflected. When it falls on a pit, light is deflected. Pattern of "on and off" signals is detected by a photodiode beam return path.)

3.1.2 Content.

3.1.2.1 General description.

a. Coverage graphics. Several coverage graphics (see 6.3.10) are normally included on each disc. The products depicted range from small scale products to large scale maps (see 6.3.39). The number of graphics varies from one to four or more. Also included on each disc side(s) is an Area of Coverage Graphic (see 6.3.2) which shows the regional parts of the world covered by the major group of maps on the disc. (For examples, see Appendix B.)

b. Scales (see 6.3.68). Each of the discs normally contain a mixture of small, medium, and large scale maps and charts over a particular region of the world.

c. Types of maps (see 6.3.45). Common types of maps and charts (see 6.3.7) included on MC&G video discs are as follows:

- (1) Small Scale World Reference Maps
- (2) Aeronautical Charts
- (3) Topographic Maps
- (4) Hydrographic Products
- (5) City Maps
- (6) Coverage Graphics

d. Coverage. Complete coverage of the disc region is usually provided for products between the scales of 1:60,000,000 and 1:250,000, if available. The total number of large scale products included varies widely. Maps of high interest areas such as major ports or cities, occasional border areas, and country capitals are common selections.

e. DMA and Non-DMA products. Standard DMA map and chart products are used as much as possible to satisfy video disc requirements. However, foreign (native), co-produced, and U.S. government map sources other than DMA are used when suitable DMA products are not available.

f. Currency. The most current editions of maps and charts available at the time of disc production are generally selected.

g. Size of geographical area. The size of the geographical area covered by MC&G video discs varies depending on the number of available maps for the area covered by the disc. Other factors involved are the physical size of the map sheets and the number of fields of views (FOV) (see 6.3.16) selected for each product.

h. Fields of view. Most products are imaged at one or two different "fields of view" (FOV). For example, a 7.62 cm (3") horizontal section of a physical map sheet displayed on the video monitor represents a 7.62 cm (3") field of view (with an aspect ratio of 4:3). The number and size of the FOV selected depends on: (1) image quality, (2) utility, (3) map type, (4) production cost and time, and (5) video disc space allocation. The most common fields of view on MC&G video discs are the 7.62 cm (3") FOV which offers the most detail with good resolution and the 15.2 cm (6") FOV which is used for overviews with marginal resolution.

i. Operate at Constant Angular Velocity (CAV) (see 6.3.6) of 1800 revolutions per minute (30 frames per second).

j. Contain images that are systematically recorded and transferred onto video disc (a single image per frame).

k. Have rectangular frame images with an aspect ratio of 4:3 (4 units in the horizontal and 3 units in the vertical direction).

l. Contain images that are randomly accessed.

3.1.2.2 Typical Mixture of Map and Chart Products on a MC&G Video Disc Side.

MAP TYPE	SERIES	SCALE	FOV (PREFERRED)	REMARKS
World Map	-	1:40,000,000	7.62 cm (3") 12.4 cm (6") 30.5 cm (12") 76.2 cm (30")	100% of world
World Map	1144	1:22,000,000	7.62 cm (3") 12.4 cm (6")	100% of world

Aeronautical	GNC	1:5,000,000	7.62 cm (3") 12.4 cm (6")	100% of Map region; Global Navigation Chart (GNC)
Aeronautical	JNC	1:2,000,000	7.62 cm (3") 12.4 cm (6")	100% of region; Joint Navigation Chart (JNC)
Aeronautical	ONC	1:1,000,000	7.62 cm (3") 12.4 cm (6")	100% of region; Operational Navigation Chart (ONC)
Aeronautical	TPC	1:500,000	7.62 cm (3") 12.4 cm (6")	100% of region, if available; Tactical Pilotage Chart (TPC)
Topographic/ Aeronautical	JOG	1:250,000	7.62 cm (3") 12.4 cm (6")	100% of region, if available; Joint Operational Graphic (JOG)
Topographic Maps	Varies	1:50,000	7.62 cm (3") 12.4 cm (6")	Percentage of coverage varies
City Graphics	Varies	Various	7.62 cm (3") 12.4 cm (6")	Percentage of coverage varies
Hydrographic Charts	Varies	Large Scale;	7.62 cm (3") 12.4 cm (6")	Percentage of coverage varies
Coverage Graphics	-	Scale Varies	FOV Varies	FOV depends on area of extent and readability

3.1.3 Format.

3.1.3.1 Introductory frames. Information contained on the first 9 frames of each MC&G video disc shall be as follows:

- a. FRAME 1 - Security Classification of video disc
- b. FRAME 2 - DMA Logo
- c. FRAME 3 - Caution Notes
- d. FRAMES 4 & 5 - Government Regulations governing use of disc
- e. FRAME 6 - Disc Title Information
- f. FRAME 7 - Reference Registration Grid

g. FRAME 8 - Area of Coverage Graphic

h. FRAME 9 - Color Bars

3.1.3.2 Inner Content.

a. Maps and Charts

b. Legends

c. Glossaries

d. Special Information

e. Coverage Graphics

(1) Area of Coverage Graphic

(2) Coverage Graphics at Specific Scales

3.1.3.3 Final Frame. Same information as Frame 1.

3.1.4 Map imaging (see 6.3.31) requirements.

3.1.4.1 High quality image frames. - Only high quality image frames shall be acceptable. Common types of problems concerning image quality and possible disc rejection:

a. Image Distortion.

b. Fuzziness.

c. Bright or dark spots.

d. Uneven illumination.

e. Background ghosts.

f. Images of ripped, soiled, rippled (not flat) or wrinkled source or background material.

g. Images of foreign objects.

h. Color shifts between images and source material.

i. Color shifts between maps and their legends.

j. Black, white, or missing frames in a scan.

k. Image fluttering.

3.1.4.2 Fields of view and scale.

- a. A 4:3 width-to-height ratio shall be used for map image (see 6.3.47) fields of view.
- b. Map/chart material shall be imaged at a constant size for a given scale and field of view.
- c. Fields of view for each map scale will be specified in the source package (see 6.3.73) instructions.
- d. Coverage graphics shall be imaged at the field(s) of view most ideal for (1) an overview of the graphic as a whole and (2) a closeup view (with 100% readability).

3.1.4.3 Mosaicking.

- a. Imaging shall be done from mosaics (see 6.3.54) whenever possible, although imaging from individual map sheets is acceptable. Approximately 90% of MC&G video discs normally involve mosaicking.
- b. When mosaicking, sheets shall be cut in such a manner as to retain, as best as possible, the most current textual information.
- c. Map mosaics shall be edge-matched (see 6.3.14), as opposed to feature-matched (see 6.3.15). ("Map mosaics" are constructed by matching selected data of adjoining map sheets of the same projection, scale, etc. Matching printed lines of latitude (see 6.3.40) and longitude (see 6.3.44) is called "edge-matching". Matching roads, rivers, lakes, and other physical elements is called "feature-matching".)
- d. Map sheets (see 6.3.51), which are based on different map projections or datums, have different scales, or can not be physically forced to match, shall not be mosaicked.

3.1.4.4 Imaging/Deleting (see 6.3.12).

- a. Map insets (see 6.3.37) and location diagrams shall be imaged separately and in such a manner as to retain their integrity and readability.
- b. In order to save disc frames, sections of medium and large scale (1:600,000 and larger) map sheets depicting large bodies of open water that extend to the edge of the sheet, shall be deleted 10.2 cm (4") out from the shoreline. Cutting shall be aligned along lines of latitude and/or longitude. Open water areas deleted shall not contain land features of any kind.
- c. Expurgated sections of maps that extend beyond 10.2 cm (4") from non-expurgated sections shall be deleted. Cutting shall be aligned along lines of latitude and/or longitude. (For example, a Mexican-produced map sheet might show all map features for the Mexican side of the border, but none for the Guatemalan side. The Guatemalan section would be considered to be the expurgated section).

d. When two map sheets at the same scale are provided for the same geographical area (each sheet showing an opposite country expurgated), and the sheets meet other imaging requirements, these sheets shall be imaged separately, and the expurgated areas deleted from the photography. This will permit an automatic transition from one sheet to the other in the display system.

e. Source material (see 6.3.72) (mosaics or individual map/chart sheets), not containing any of the above problems shall be imaged as a whole, unless directed otherwise in the source package instructions.

3.1.4.5 Positional accuracy of registration and percentage of image overlap.

a. Measurements and references shall be made with respect to map image center points.

b. The top of each image shall be oriented to the north so that a vertical line passing through the image center is perpendicular to the line of latitude upon which the image center point resides.

c. Consecutive images shall be separated by a constant longitudinal step that is equal to a percentage of image width. (This step is usually held constant for a given map or mosaic, but may vary for each scan.) The percentage of west-east image overlap shall normally be 50%. However, when imaging maps where lines of meridian converge to the north or south, imaging shall begin with a 50 percent west-east overlap and, as scan (see 6.3.69) imaging proceeds, readjust to 50 percent whenever the overlap exceeds 75%.

d. Consecutive map/chart scans shall be imaged from south to north. Consecutive south-north scans shall be separated by an amount equal to the desired percentage of south-north overlap which is approximately 30%.

e. Any point of a displayed video disc map/chart image shall lie within one grid tick (see 6.3.29) on the standard reference registration grid (Appendix A).

f. Positional accuracy of a frame's center point shall be tested by superimposing an electronic copy of the registration grid (Appendix A) onto the map image and comparing it to the center point geocoordinate (see 6.3.22) position indicator.

g. Image rotation error tolerance shall be within ± 2 degrees, as measured between map true north and actual frame north. Rotational accuracy shall be tested with the electronic copy of the registration grid.

3.1.4.6 Background and border requirement of images

a. Map images shall contain no border information other than latitude and longitude grid ticks. Images shall contain geographic map information only and not textual or other descriptive data. A border and background of medium blue color (DoD-MC&G #47352 Printing color (see 2.1.2.d) at the screen of 91 percent or equivalent) shall be used.

b. "Trapped out" areas shall be cleanly cut from the map, exposing the medium blue background. Examples of "trapped out" areas are legends, glossaries, hydrographic information, and location diagrams depicted inside the neatline areas of the map.

c. Map/mosaic border areas designated to be "deleted" shall use a visible border area of the same medium blue color.

3.1.5 Map-related image requirements. Map-related images are specially designated frames on MC&G video discs containing introductory frames, legend, glossary, and special information pertaining to the maps and charts.

3.1.5.1 Introductory frames. All introductory frames shall contain textual and graphic material that is neat, well-centered and fully legible on the display screen. The same style of type shall be maintained on Frames 3 through 6. Frames 2 through 6 shall contain text printed in white on a medium blue (DoD MC&G Printing color #47352 (see 2.1.2.d) at the scene of 91% or equivalent) background.

a. Frame 1 shall contain the security classification and control and release markings of the most highly classified material on the video disc. Security markings shall comply with Defense Intelligence Agency Manual 65-19, Standard Security Markings (see 2.1.2.c).

b. Frame 2 shall contain the DMA logo (color image).

c. Frame 3 shall contain the warnings: "This product shall NOT BE USED FOR NAVIGATION OR ACCURATE POSITIONING", "The frame images on this video disc are not updated by Notice to Mariners or Notice to Airmen publications", and "Maps and charts appearing on this video disc are the most current editions available at the time of manufacture."

d. Frame 4 shall contain the notices: "Several maps and charts on this video disc are based in whole or in part on information from other than official government sources. Copyright restrictions of the country of origin continue to exist. Refer to the original source and compilation material for this information."

e. Frame 5 shall contain the notice "The representation of international boundaries on the various maps and charts on this video disc is not necessarily authoritative."

f. Frame 6 shall identify the video disc product (see 6.3.78) with the following information:

(1) Video disc Title

(2) Production Date

(3) Statement: "Produced by Defense Mapping Agency, Washington, D.C."

(4) File Number (see 6.3.17)

(5) Highest Classification of Data

(6) Classifying Authority (Classified discs only):

"Declassify on OADR" or "Declassify on...(date)"

g. Frame 7 shall contain the reference registration grid (see 6.3.65) in black on a white background (Appendix A).

h. Frame 8 shall have a graphic showing the area of coverage contained on the video disc side.

i. Frame 9 shall contain color bars (NTSC standard).

3.1.5.2 Last frame. Shall contain the same information as 3.1.5.1.a (Frame 1).

3.1.5.3 Legends. Legends shall be constructed for each different map series (or unique type of map product) on a video disc. They shall be readable and cover the same or approximately the same surface area (smallest field of view) as the frames of corresponding imaged map material. Legend frame (see 6.3.42) information shall be extracted for the video disc from "trapped out" legends inside the neatlines of maps, as well as the margins. Legend images shall be cropped so that only legend data (words or symbols) are included completely inside the field of view. The same medium blue background color as map/mosaic border areas shall be used for visible border areas on the legend frames. Legend symbol colors shall match their related map symbols as closely as possible. Only Anglized versions of foreign languages shall be imaged along with their English translation.

3.1.5.4 Glossaries. Specially tailored glossaries shall be constructed for each map/chart sheet on the video disc (if that information exists). Information shall come from "trapped out" glossaries inside map neatlines as well as map margins. Each map shall have its own individually accessible glossary. The same criteria described for the legends shall be used, except that a white background color shall be used for visible border areas of glossary frames.

3.1.5.5 Special information. Special information, which appears on map/chart products and is instrumental in the use or interpretation of the products, shall be constructed in the same manner used for legends, except that a white background color shall be used for visible border areas of the frames. Each map shall have its own individually accessible special information. For example a city map of Seattle that depicts special points of interest may contain ancillary textual information, such as a Guide to Numbered Features. This textual information must be imaged.

3.2 Map Indexing Databases.

3.2.1 General description.

a. An MC&G Video Disc Indexing Database (see 6.3.33) shall consist of information on the maps, map images, and map image frame locations on its related video disc. The data information shall be organized in such a way that

each database is uniquely associated with its related video disc. The data shall be organized so that the maximum user response time for the following computer/player/numeric co-processor combination shall be 2.0 seconds. (NOTE: Maximum user response time is defined as follows: The longest time required to retrieve the desired frame when executing any indexing system function.) The amount of storage required for the database of a given video disc varies as a function of the type of computer and the number of maps, projection data, and map scans.

b. MC&G Databases shall be designed in such a way that their information can be accessed by either of two types of application programs: (1) MC&G Video Disc Indexing System Program Software (VIDEO MAP) (see 6.3.80) and (2) User Application Software (see 6.3.1). Both programs are described in 6.5 of this specification. Database information shall be distributed on both floppy diskette for the IBM PC/compatible and magnetic tape for the VAX 11/780 mini-computer.

3.2.2 ASCII data file format.

a. MC&G map databases shall be distributed as ASCII (see 6.3.3) files that may be processed, in many applications, to create efficient map indexing databases.

b. Indexing databases shall, for each map/chart included on a video disc, include entries that provide general descriptive map information and identify scan parameters for each field of view imaged. (Appendix D describes these in detail and gives line by line examples of each. Appendix E gives several examples of actual complete databases.) Entries shall include at least the following information:

- (1) Map Series (see 6.3.50)
- (2) Sheet Number
- (3) Sheet/Graphic Name
- (4) Type of Projection (see 6.3.63)
- (5) Scale
- (6) Spheroid (see 6.3.74)
- (7) Boundaries
- (8) Projection Parameters
- (9) Map Polygon Points
- (10) Horizontal Datum (see 6.3.11)
- (11) Vertical Datum
- (12) Edition

- (13) Country
- (14) Production Date
- (15) Security Classification
- (16) Map Sheet Corner Coordinates (see 6.3.9)
- (17) Frame Center Coordinates
- (18) Glossary Location Parameters
- (19) Legend Location Parameters
- (20) Special Information Location Parameters and Names
- (21) Fields of View
- (22) Field of View Designator and Size
- (23) Scans Per Given Field of View
- (24) Sequential Scan and Scan Location Parameters

c. The indexing database contents of each video disc shall be described on:

(1) Floppy Diskette

- (a) Description: 13.34 cm (5 1/4") 1.2 MB Floppy Diskette
- (b) Format: ASCII Text File(s)
- (c) Operating System: PC/MS-DOS (compatible with 3.2 and higher)

(2) Magnetic Tape

- (a) Description: 1600 BPI, 9-Track; provided in backup utility form
- (b) Format: ASCII Text File
- (c) Operating System: VMS (compatible with 4.2 and higher)

d. The intent of the diskette and tape is to provide video disc users with a method of inputting the contents of the video disc into their own unique database file format.

e. The ASCII file format has been defined in the above described manner to promote video disc map product portability among different computer systems.

3.2.3 VIDEOMAP-Readable, database format.

a. A software conversion program (TRANSDB), written in the C programming language is provided for VIDEOMAP users. Its purpose is to convert the ASCII text file information associated with a specific MC&G video disc into a DMA VIDEOMAP-readable format. The ASCII file information developed for each video disc shall be supplied on a floppy diskette or magnetic tape, as described in 3.2.2.C.

b. After the user completes the commands of the conversion program, five data files are created, named for their associated video disc:

- | | |
|------------------------------|--------------------------|
| (1) VLDnnn. ¹ DIR | Primary Map Data File |
| (2) VLDnnn.TBL | Secondary Map Data File |
| (3) VLDnnn.PRJ | Map Projection Data File |
| (4) VLDnnn.PNT | Map Polygon Point File |
| (5) VLDnnn.SCN | Scan Records File |

c. A description of each of these files follows:

(1) The Primary Map Data File contains the minimum amount of information which must be retained in memory to allow rapid and efficient map indexing operations. This information includes the map scale, projection type, extreme geographic bounds, number of fields of view, and indices into the polygon and map projection data files.

(2) The Secondary Map Data File contains all of the information required to view and manipulate a given map. Included is ancillary information such as the map name, series, datum types, and so on.

(3) The Map Projection Data File is a list of map projection (see 6.3.48) data. The file is indexed using information from the Primary Map Data File. The Projection data contains information used in imaging the maps which is required for indexing operations.

(4) The Map Polygon Data File is a list of polygon definition points. The file is indexed using information from the Map Directory File. The polygon points define the area of a given map sheet which has been imaged.

(5) The Scan Records File is the map scan information for each field of view of the map.

d. All five files must be present for the VIDEOMAP program to operate. These files are binary read-only files and are not designed for access or modification by users. The files are updated only if incorrect data is found. Their structure is organized in such a way that changes can be easily made (such as adding or deleting material for map sources).

¹ "nnn" = the last 3 digits of the corresponding MC&G video disc file number identified on the disc label.

e. The converted map data files shall contain information which allows the VIDEOMAP program to identify and select video disc map images in response to user commands.

f. VIDEOMAP-readable files have been structured to allow efficient implementation of the VIDEOMAP indexing system program. The design supports the direct random access indexing of database elements to minimize the total amount of information which must be in-memory to support efficient indexing operations.

g. Examples of typical screens containing the database information are described in Appendix F.

h. Map List Information is listed by product designation according to scale and in a sheet or chart numeric order.

i. Information for small scale source material precedes the information for large scale products.

j. General data information is contained on: (1) the Map List Display and (2) the Main Command Menu After Map Selection. More detailed data information about each map source is displayed in the Title Information Display Frame on the computer system monitor.

3.3 Stock numbers.

3.3.1 Content. Each video disc product shall have a unique stock number. The identification shall consist of the words DMA Stock No., followed by a unique numbering scheme described in table 1 below.

Sample Video Disc Product Stock Number: VLDXX11855

DESCRIPTOR	PRODUCT TYPE DESCRIPTOR	NUMBER DESCRIPTOR	DESCRIBES...
VLD	XX		video disc product
	SX		unclassified video disc
	DI		classified video disc
	DS		unclassified PC database diskette
	TI		classified PC database diskette
	TS		unclassified VAX database/program tape
		XXXXXX	classified VAX database/program tape
	SI	118400	unique 6 digit identifier
	UM	TXMANUAL	PC software
			User's manual

TABLE 1. Video Disc Numbering Scheme.

3.3.2 Bar codes. Each video disc product shall be bar coded in accordance with MIL-STD-600010, Military Standard DMA Stock Number Bar Coding.

3.3.3 Placement. The placement of stock numbers and bar codes is described in the style sheets as described in the applicable sections of Appendix B.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this specification, where such inspections are deemed necessary, to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for Compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements. This does not authorize submission of known defective materials, either indicated or actual, nor does it commit the Government to accept defective materials.

4.1.2 Final product quality. Final product quality will reflect the quality expressed by each applicable standard.

5. PACKAGING

5.1 Packaging. All materials shall be appropriately packaged to insure against possible damage resulting from improper handling, inclement weather, water damage, or excessive heat or cold.

6. NOTES

6.1 Intended use. MC&G Video Disc Products (see 6.3.78) are designed to provide virtually instantaneous access of map and chart images. DMA video disc products are used as tools for the following purposes: (1) BRIEFINGS - to support senior-level staff planning, command and control, and simulation systems, (2) UNDERLAYS - to support the positioning of graphic overlay data superimposed over displayed map images, and (3) GEOGRAPHIC FEATURE POSITIONING - to provide a means for establishing geographic feature positions quickly (in terms of latitude and longitude). Product use is based on the geographic coordinate system and supports spatial display of geographic information through the use of cartographic map projections.

6.2 Supersession. These specifications supersede Defense Mapping Agency Product Specifications for Mapping, Charting, and Geodesy (MC&G) Video Discs, PS/3DL/010, First Edition September 1986.

6.3 Definitions.²

6.3.1 Application software. A program, such as VIDEOMAP, that performs specific tasks with specific results. Such a program will interface with the video disc player, user databases, and peripherals to perform briefings, underlays, and geographic feature positioning.

6.3.2 Area of coverage graphic. Generalized coverage graphic found on frame 8 that displays the geographic area of the world covered by the major group of maps on the video disc.

6.3.3 ASCII. American Standard Code for Information Interchange. A standard coding method for computer representation of numbers, letters, etc. Defines numeric value from 0 to 255 for each displayable and control function character.

6.3.4 Aspect ratio. Width-to-height ratio of an image viewed on a video screen. The National Television Standards Committee (NTSC) standard aspect ratio is 4:3. DMA MC&G Video disc images must conform to this ratio.

6.3.5 Call (as in subroutine call). Program instruction that directs program execution to a given subroutine to perform a specific task that is expected to be repeated a number of times during program execution. Upon completion, the subroutine usually returns program execution to the main program or another subroutine.

6.3.6 CAV (Constant Angular Velocity). Reference to a type of video disc that operates at CAV and contains one image frame per track. A DMA video disc operates at CAV of 1800 revolutions per minute (30 frames per second).

6.3.7 Chart. Special purpose map generally designed for hydrographic or aeronautical use.

6.3.8 Check disc. Preliminary disc created during video disc production for the purpose of checking the content and quality of disc images with their related map database information and their operability with the indexing system software and hardware.

6.3.9 Coordinates. Quantities that designate the position of any point within a given reference system (e.g., geographic, UTM, or Lambert coordinates). The geographic coordinate system is the standard reference system used with VIDEOMAP.

6.3.10 Coverage graphics. Graphics that display the geographic area covered by products of specific scales on a video disc.

6.3.11 Datum. Reference to which horizontal and/or vertical measurements are made. A geodetic datum is uniquely defined by five qualities: latitude, longitude, geoid height, semimajor axis, and semiminor axis. The latter two quantities define the reference ellipsoid.

² All definitions are defined as they relate to DMA MC&G Video Disc products.

6.3.12 Deleting. Process of not recording images of source material on film or videotape. Blue background may not be visible in area of deletion.

6.3.13 Disc mastering. Process in which video information is transferred to a special disc which can be used to produce numerous copies of laser video discs.

6.3.14 Edge matching. Technique for making a map mosaic from adjacent map sheets by giving priority to alignment of geographic coordinates and grid ticks over alignment of other features such as roads, rivers, and other topographic elements. MC&G maps/charts are normally edge-matched.

6.3.15 Feature matching. Technique for making a map mosaic from adjacent map sheets by giving priority to alignment of roads, rivers, and other topographic elements over alignment of geographic coordinates and grid ticks.

6.3.16 Field of view (FOV). Horizontal width (expressed in inches) of that portion of a physical map sheet contained in one map image.

6.3.17 File number. File designator used to identify the database files pertaining to a specific side of a video disc (eg. VLD642).

6.3.18 Frame. Individual video disc image.

6.3.19 Frame content. Actual information imaged on a frame.

6.3.20 Frame count. Number of frames used to cover a single map/chart, mosaic of maps/charts, or entire video disc.

6.3.21 Frame size. In reference to the field of view.

6.3.22 Geocoordinate. Location on the earth, expressed in latitude and longitude.

6.3.23 Geographic coordinates. Latitude and longitude values that define the position of a point on the earth's surface with respect to a given reference spheroid.

6.3.24 Geographic distance. Distance in degrees, minutes, and seconds between two points on a map/chart or other source material.

6.3.25 Glossary frames. Video disc frames that contain glossary information relating to maps/charts or other source material contained on the video disc.

6.3.26 Graphic. Diagram, sketch, or cartographic art product that may not have the controlled properties of a map or chart; e.g., scale, projection, datum.

6.3.27 Graphic overlay. Computer-generated symbol or graphic that is visually displayed "over" an already displayed map image. An overlay can be geographically defined, is associated with a given video disc frame, and can be automatically displayed when the video disc frame is displayed.

6.3.28 Graticule. Network of lines representing the earth's parallels of latitude and meridians of longitude.

6.3.29 Grid tick. Small mark on the interior grid line of a map used for ease of position referencing.

6.3.30 Image retrieval software. Library of subroutines that enable application software to access a map index database and find appropriate video disc maps and/or related data.

6.3.31 Imaging. Process of recording images of source material on film or videotape.

6.3.32 Index mark. Cross inside a circle located in each of the 4 corners of the reference registration grid.

6.3.33 Indexing database. Information that identifies the type and location of map images and other map-related data contained on a given video disc.

6.3.34 Indexing functions. Library of procedures which use a database to provide functions for accessing map imagery stored on a video disc.

6.3.35 Indexing program. Computer program, such as VIDEOMAP, which uses the indexing functions to manipulate and display information about video disc map imagery.

6.3.36 Indexing system. Combination of indexing functions, an indexing program, and a video disc map database which provides automated access to video disc map images.

6.3.37 Inset. Separate map positioned within the neatlines of a larger map.

6.3.38 Jacker. Cardboard envelope for a video disc.

6.3.39 Large scale map/chart. Map/chart whose scale allows for coverage of a small area on the surface of the earth; e.g., a town, city, port, or harbor.

6.3.40 Latitude. Angular distance north or south from the earth's equator measured through 90 degrees.

6.3.41 Latitude scan. Series of map images, each centered on a line of latitude, and each offset from the next by a constant longitudinal distance.

6.3.42 Legend frames. Symbol information frames relating to maps/charts on a video disc.

6.3.43 Library. Collection of subroutines used to control operation of a video disc player in order to access video disc map images. This library is provided as an integral part of video disc products.

6.3.44 Longitude. Angular distance east or west from the prime meridian (Greenwich, England) measured through 180 degrees.

6.3.45 Map. Geographic representation, usually on a plane surface and at an established scale, of the natural and artificial features on the surface of the earth or other planetary body.

6.3.46 Map distance. Distance on the surface of geographic/cartographic source material, measured in inches/centimeters.

6.3.47 Map image. Single video image of a portion of one or more map sheets.

6.3.48 Map projection. See projection.

6.3.49 Map scale. Ratio of distance on a map to actual distance on the earth. Due to the nature of transformations from a sphere to a plane, the scale of a map will rarely be a constant.

6.3.50 Map series. Map sheets, collectively identified by the producing agency, that usually have the same scale and cartographic specifications.

6.3.51 Map sheet. Single map printed on one sheet of paper.

6.3.52 Mask. Photographic technique by which unwanted material is hidden/covered by a color or some other information on mosaicked maps/charts.

6.3.53 Medium scale map/chart. Map/chart whose scale allows for coverage of a medium-sized area on the surface of the earth. This type of map usually covers parts of countries or bodies of water.

6.3.54 Mosaic. Two or more adjacent maps/charts connected together to produce one large map/chart.

6.3.55 Neatlines. Lines that bound the body of a map.

6.3.56 NTSC. National Television Standards Committee, which defines the characteristics of signals used to record and broadcast television images in the United States.

6.3.57 Operating system. System software that supervises the processing of application software, such as VIDEOMAP, within a computer.

6.3.58 Overlap. Amount (percentage) of one map image that appears in adjacent map images. Overlapping retains viewer perspective when moving from one video map frame to an adjacent frame. DMA MC&G video disc images typically overlap by 50% in an east-west direction and by 30% in a north-south direction.

6.3.59 Overlay. See graphic overlay.

6.3.60 Pan. Process of viewing a sequence of adjacent images in one direction.

6.3.61 Peripheral. Equipment that is distinct from, but whose operation is controlled by, a central processing unit (computer); e.g., video disc player, printer.

6.3.62 Positioning accuracy. Degree of accuracy at which can describe (in latitude and longitude coordinates) and display a known map/chart feature or position.

6.3.63 Projection. Transformation function between geographic coordinates of a map and a Cartesian space, or vice versa, which can be used to depict the earth as a flat surface.

6.3.64 Registration. Process of accurately determining and recording the geographic positions that reference locations associated with each video disc map image.

6.3.65 Registration grid. Reference grid used to determine positional accuracy of a map/chart image.

6.3.66 Replication. Process in which a video disc master is used to replicate or make copies of video discs.

6.3.67 Resolution (of video monitor screen). Smallest distinguishable element that a video monitor can display. Resolution is usually stated as lines of vertical or horizontal resolution.

6.3.68 Scale. Ratio between a distance measured on a map, chart, or photograph and the actual corresponding distance.

6.3.69 Scan. Sequence of adjacent map images along a given line of latitude.

6.3.70 Scan line. Line formed by the connection of image center points of a scan.

6.3.71 Small scale map/chart. Map/chart whose scale allows for coverage of a large area on the surface of the earth. This type of map/chart covers countries, continents and large bodies of water. A very small scale map would depict the whole world.

6.3.72 Source material. Geographic/cartographic materials, such as maps, charts, photographs, text, diagrams, and graphics, whose images have been placed onto a video disc.

6.3.73 Source package. Collection of selected maps and charts covering a particular geographic area along with special instructions for use in the production of a video disc.

6.3.74 Spheroid. Theoretical figure whose dimensions closely approach the dimensions of a geoid (the surface that coincides with the undisturbed mean sea level extended continuously through the continents). The exact dimensions are determined by various considerations of the section of the earth's surface concerned.

6.3.75 Step factor. Constant offset of geographic distances, horizontal or vertical, between successive images or scans of a map/chart. Step factor is a function of the percentage of overlap.

6.3.76 Video disc. A 30.5 cm (12") Constant Angular Velocity (CAV) analog video disc capable of storing video images on each side (equivalent to approximately 200 average-sized map sheets at two different fields of view). Images contained on MC&G video discs consist of: maps and charts, coverage graphics, legends, glossaries, and special information.

6.3.77 Video disc map system. Minimum requirements of an automated video disc map system are: (1) Video disc, (2) Video disc map indexing database, (3) Application software, (4) Video Disc Player, (5) Computer (usually a personal computer with its system monitor), and (6) Color display monitor.

6.3.78 Video disc map products. MC&G Video disc map products are DMA standard products that consist of three integral components: (1) Video discs, (2) Video Disc Map Index Databases, and (3) Application Software, including image retrieval subroutines. Automated (computer-controlled) access to video disc images requires use of all three components. They have been designed for use with standard laser, video disc players that are attached to, and controlled by, a computer: (1) an IBM PC/compatible (under DOS) or (2) a VAX 11/780 (under VAX/VMS). For the IBM PC, the products consist of a Program Diskette, a library of Database Diskettes (one per video disc), and a corresponding library of MC&G video discs. For the VAX 11/780, they consist of a 9-track Magnetic Tape containing the Program and Map Databases, as well as the same corresponding library of video discs. A user's manual is also available to explain the operation of the software products.

6.3.79 Video image. That portion of a National Television System Committee (NTSC) composite video signal which contains image information.

6.3.80 VIDEOMAP. Name of the application software program developed for viewing DMA video disc map products. VIDEOMAP provides the ability to access and display map images from DMA-standard MC&G video discs. It consists of a simple-to-use interactive interface that provides single-key access to most indexing functions. VIDEOMAP capabilities include: (1) Changing Field of View (Larger/Smaller), (2) Changing Scale (Larger/Smaller), (3) Displaying a Map based on a geocoordinate entry, (4) Selecting a Map from the Map List, (5) Displaying Map Legends, Glossaries, and Special Information, (6) Panning North, South, East, and West, and (7) Recording and Returning to Map Locations. VIDEOMAP uses the standard image retrieval library subroutine calls (Appendix C) to retrieve image frame locations from video disc map index databases.

6.4 International Standardization Agreements. Certain provisions of this specification are subject to international standardization agreements. When amendment, revision, or cancellation of this specification is proposed that will modify the international agreement concerned, the preparing activity will take appropriate action through international standardization channels including departmental standardization offices, to change the agreement or make other appropriate accommodations.

6.4.1 International Standardization Agreements (STANAGs). This section is not applicable to this specification.

6.4.2 Quadrupartite Standardization Agreements (QSTAGs). This section is not applicable to this specification.

6.4.3 Air Standardization Coordinating Committee Agreements (ASCC AIR STDs/STDs/ADV PUBs). This section is not applicable to this specification.

6.4.4 International MC&G Agreements. This section is not applicable to this specification.

6.4.5 Executive Orders. This section is not applicable to this specification.

6.4.6 Interagency Agreements. This section is not applicable to this specification.

6.4.7 Other Documentation. This section is not applicable to this specification.

6.5 Application Software.

6.5.1 User-provided programs. MC&G Video Disc Products have been designed in such a way that users may substitute their own application programs in place of VIDEOMAP to access the video discs and database information. However, these programs must use the standard image retrieval library subroutine calls (Appendix C) to retrieve the image frame locations from the map indexing databases. The programs must also provide the instructional commands to operate the video disc player, search the video disc map indexing databases, and overlay graphics onto the video images.

6.5.2 MC&G indexing system program.

6.5.2.1 General description.

a. VIDEOMAP, DMA's application program for viewing MC&G video disc map products, enables users to select from a set of maps, display and manipulate map images, and view ancillary map information. A simple-to-use interactive interface provides single-key access to most indexing functions. All standard operations take place under keyboard input, with mouse-driven graphic support provided as an option. See Appendix F for samples of VIDEOMAP-derived screens that appear on the system monitor.

b. VIDEOMAP capabilities include:

(1) Changing field of view (larger/smaller). From any given map image, VIDEOMAP allows one-key access to the appropriate image from the next larger or smaller field of view. ("Appropriate image" is defined as one which contains the center point coordinate of the previous map image and, in cases where more than one map image meets this requirement, the map image whose center point is closest to the center point of the previous map image.)

(2) Changing scale (larger/smaller). From any given map image, VIDEOMAP allows one-key access to the appropriate image from the next larger or smaller scale map. ("Appropriate image" = same meaning as in 6.5.2.1.b.(1)).

(3) Displaying a map based on a geocoordinate entry. On user input of a geocoordinate, map scale, and field of view, VIDEOMAP displays the corresponding map image. Geographic coordinates (see 6.3.23) are specified in:

- (a) Degrees, or;
- (b) Degrees and minutes, or;
- (c) Degrees, minutes, and seconds.

VIDEOMAP defaults to the largest field of view and the smallest scale map if these parameters are not specified.

(4) Selecting a map from the map list. Given a map frame, VIDEOMAP continuously displays:

- (a) Map name
- (b) Map series
- (c) Map sheet number
- (d) Map scale (see 6.3.49)
- (e) Current field of view
- (f) Image classification
- (g) Country designation of map sheet
- (h) Center point coordinates of the image

(5) Displaying a map's legend. For any given map, VIDEOMAP displays legend information with a single keystroke.

(6) Displaying a Map's Glossary. For any given map, VIDEOMAP displays glossary information with a single keystroke.

(7) Displaying Special Map Information. For any given map, VIDEOMAP displays special information with a single keystroke.

(8) Displaying Detailed Map Information. For any given map image, VIDEOMAP displays the following information:

- (a) Projection type
- (b) Spheroid
- (c) Horizontal datum

- (d) Vertical datum
- (e) Edition number
- (f) Producing country
- (g) Map date
- (h) Date type
- (i) Available fields of view
- (j) Four sheet corner coordinates
- (k) Four index mark/point coordinates

(9) Scrolling north & south; panning east & west. From any map image, VIDEOMAP allows one-key access to the map images which are north, south, east, or west of the current map image. If there is no geographically adjacent map image, VIDEOMAP displays the closest map image in the given direction at the same scale and field of view.

(10) Recording a map location. VIDEOMAP allows the recording of up to eight map images/locations.

(11) Jumping to a recorded map location. VIDEOMAP allows the recall of previously recorded map images/locations.

(12) Providing help information. On request, VIDEOMAP displays help information.

(13) Moving cursor (for systems equipped with a graphics overlay capability). VIDEOMAP generates a cursor which can be moved by a mouse (IBM PC) or keys from a keyboard (VAX).

(a) Geocoordinates for the cursor position are constantly displayed.

(b) The cursor position is used as the default geocoordinate for changes in field of view and scale.

(c) Coverage graphics are used to directly access materials of a specific scale by moving the cursor to the location desired.

(d) VIDEOMAP allows automatic access to Coverage Graphics to be disabled, and subsequently re-enabled.

(14) Electronic Copy of the Registration Grid (for systems equipped with a graphics overlay capability). An electronic copy of the registration grid in Frame 7 is available for frame image registration and as a reference for measurements (for checking positional and rotational accuracy requirements).

c. MC&G Video disc indexing system software containing VIDEOMAP is distributed on 13.3 cm (5 1/4") floppy diskette for the IBM PC/compatible (under PC/MS-DOS). It is also distributed on magnetic tape for the VAX 11/780.

d. VIDEOMAP is written in modular form. Each module is capable of completing a specific function, while all of the modules together produce a complete operating video disc indexing system. VIDEOMAP provides the user with access to the functional modules which interpret and manipulate the video disc map database. The program contains procedures for obtaining user inputs, displaying interface screens, and invoking map and video disc library functions.

6.5.2.2 Library function requirements. A set of standard library functions for video disc map products is defined to enable VIDEOMAP, or user-provided application programs, to interact with video disc indexing databases via function calls. The libraries provide functional compatibility and support device-independent indexing procedures. Appendix C provides details on these functions. (Note: These library functions do not support operation of video disc players or graphics overlaying. Such functions are the responsibility of user-provided application programs.)

a. Initialize map library. Initializes video disc map indexing procedures and loads appropriate data files associated with a specified video disc.

b. Find specific map image directly. Gives the frame number of the image whose center point is closest to the designated coordinate, scale, and field of view.

c. Move on given map (pan/scroll). Gives the frame number of the image whose center point is the closest geographically adjacent image, in response to user commands to move north, south, east, or west from a displayed image.

d. Find another map. Gives the frame number of the image of the map with the same scale and field of view, in response to user commands to move north, south, east, or west from a displayed image.

e. Get smaller/larger field of view. Gives the frame number of the image whose center point is closest to the designated coordinate and has the next smaller/larger field of view to that which is currently being viewed.

f. Get smaller/larger scale. Gives the frame number of the image whose centerpoint is closest to the designated coordinate and has the next smaller/larger scale to that which is currently being viewed.

g. Convert point on screen to geographic coordinate. Gives the geographic coordinate (geo-coordinate) value for a specific X, Y position on the viewing screen, considering the projection and rotation of the map image.

h. Convert geographic coordinate to point on screen. Gives the specific X, Y position on the viewing screen for a specific geocoordinate value, considering the projection and rotation of the map image.

i. Load a specific map. Loads the viewing information for a given video disc map product.

j. Get legend information. Gives the starting frame and number of the legend frames for the currently viewed map image.

k. Get glossary information. Gives the starting frame and number of the special information frames for the currently viewed map image.

l. Define screen resolution. Gives the graphic screen X and Y resolution.

m. Get map information. Gives the following information for a specified map product:

- (1) Name
- (2) Projection
- (3) Scale
- (4) Edition date
- (5) Classification
- (6) Spheroid
- (7) Sheet number
- (8) Number of fields of view
- (9) Frame center latitude
- (10) Frame center longitude
- (11) Series
- (12) Horizontal datum
- (13) Vertical datum
- (14) Printing date
- (15) Four map sheet corner coordinates
- (16) Four registration grid coordinates
- (17) Field of view width (in centimeters((inches))
- (18) Extreme geographic boundaries

n. Get map count. Gives number of map product elements on the video disc.

o. Get map number. Gives the map number of the currently viewed map.

p. Within map polygon. Determines if a given geocoordinate lies within the map polygon for a specified map.

6.5.2.3 Programs supporting VIDEOMAP.

a. CONFIG is the name of the utility program used to create or modify the system configuration file. The configuration file defines the type of devices available to VIDEOMAP (i.e., video disc player, graphics overlay, mouse), and the viewable screen limits for systems with graphic overlay capability.

b. CALIBMAP is used to create a graphics overlay registration file. The file defines the relationship of a graphics overlay system to the map registration grid appearing on a given map video disc. CALIBMAP only operates on systems equipped with a video disc player and graphics overlay capability.

c. SYSTEST is used to verify the correct operation of system components such as video disc players, graphic overlay adapters, mice, and joysticks. A series of tests are provided for each type of device.

d. The five VIDEOMAP help files, VIDEO1.HLP through VIDEO5.HLP, are text files which serve as an on-line user's manual describing system operations.

6.6 Issue of DODISS. When this specification is used in acquisition, the applicable issue of DODISS must be cited in the solicitation (see 2.1.1 and 2.2).

APPENDIX A

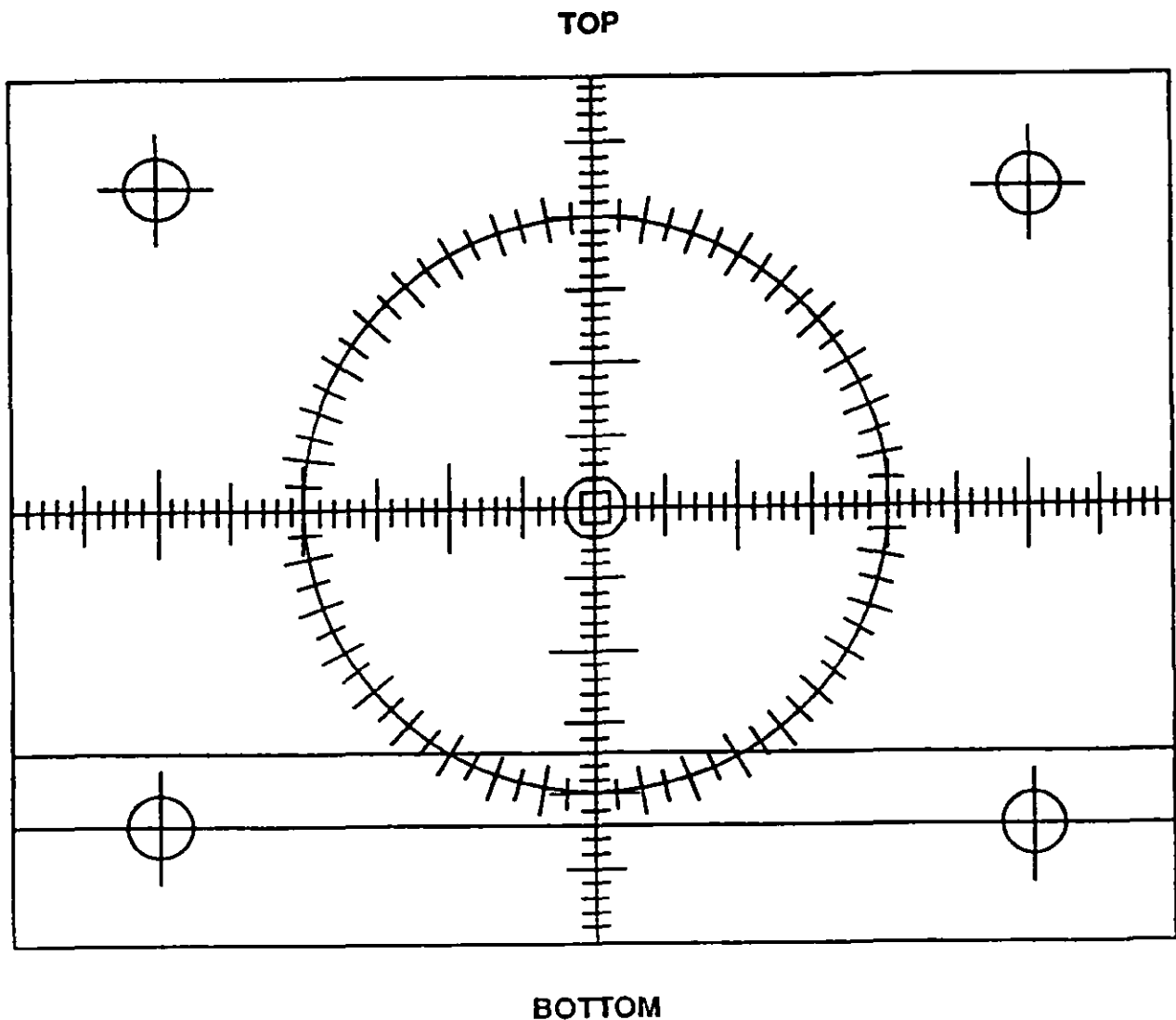
REFERENCE REGISTRATION GRID

10. SCOPE

10.1 Scope. The reference registration grid is used to determine the positional accuracy of the frame's center point by superimposing an electronic copy of the registration grid onto the map image and comparing it to the centerpoint geocoordinate position indicator. This appendix is a mandatory part of the specification. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS. This section is not applicable to this appendix.

30. REFERENCE REGISTRATION GRID



APPENDIX B

VIDEO DISC PRODUCT STYLE SHEETS

10. SCOPE

10.1 Scope. This Appendix provides the style sheets that shall be used in producing the coverage graphics, video disc jacket, and labels for the video disc, database diskette, and computer tape. This appendix is a mandatory part of the specification. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS. This section is not applicable to this Appendix.

30. STYLE SHEETS

30.1 Style Sheet notes. The following describes the fonts used on each style sheet.

a. The alphabetic portion of the font descriptor is the font type and includes the following:

U:	UNIVERS
UC:	UNIVERS CONDENSED
UL:	UNIVERS LIGHT
UB:	UNIVERS BOLD
UCB:	UNIVERS CONDENSED BOLD

b. The numeric portion of the descriptor indicates the font size:

30.2 Special notes.

a. Exact wording for the "classifying authority and declassification note", "distribution note", "user responsibility note", "classification", and "special release guidance" on the jacket covers and labels shall be identified in each video disc source package.

b. Stock numbers and VLD file numbers shall be identified in the source package.

c. Jacket cover notes.

(1) SIZE OF JACKET: The video disc jacket shall be square in size and shall measure 31.1 cm (12 1/4") by 31.1 cm (12 1/4"). The work limits shall be 1.3 cm (1/2") from each side of the jacket.

(2) Area of Coverage Graphic:

(a) The size of the Area of Coverage Graphic will vary from disc to disc. The position and font size of the text appearing above and below the graphic shall be adjusted to fit between the security classification and the graphic.

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(b) The geographic coordinate values are positioned .25 cm (0.10") from the neatline and centered on the gridlines. The gridlines shall stop .16 cm (1/16") before the coordinate values. The geographic values are set in UCB18 style type.

(c) Water areas on the graphic shall be shown with a 12% 45° angle screen.

(d) A diagonal striped pattern shall be used to depict the actual area of coverage. The lines shall be separated .16 cm (1/16") from each other. If two sides are represented, the second area of coverage shall have lines drawn diagonally in an opposite direction.

(e) Side 1 shall be separated from side 2 by a thicker line.

(f) The type size of "SIDE 1" and "SIDE 2" shall be larger than the country names used in the titles. Diagonal lines shall not extend through the type.

(3) The size of the "special release guidance" box may vary depending on the length of the message. The standard size of the box shall be 5.7 cm (2 1/4") by 3.5 cm (1 3/8").

(4) The size of the "user responsibility note" shall be 5.4 cm (2 1/8") wide by the length of the message. The standard size of the box shall be 3.8 cm (1 1/2") wide by 4.1 cm (1 5/8") high. The box note shall be in red.

(5) The size and length of the control and release markings shall vary, depending on the length of the messages. Their placement shall be directly below and to the right of the bottom security classification.

d. Label sizes in the specifications appear larger than actual size for clarity. The actual sizes of the labels are as follows:

(1) Disc labels are 8.6 cm (3 3/8") in diameter with a centered hole measuring 3.5 cm (1 3/8") in diameter.

(2) Magnetic tape labels are 8.25 cm (3 1/4") by 3.2 cm (1 1/4").

(3) Diskette labels are 12.5 cm (4 15/16") by 4.1 cm (1 5/8").

e. All security markings for classified products shall be printed in red. All security markings for unclassified products shall be printed in black.

30.3 Attachments.

a. Area of Coverage Graphic.

(1) Figure 1 - Area of Coverage Graphic on Frame 8

(2) Figure 2 - Coverage Graphic Showing Maps/Charts at Specified Scales

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(3) Figure 3 - Coverage Graphic Showing Large Scale Maps of Cities and Ports

b. Video Disc Jacket.

- (1) Figure 4 - Front of single-sided disc
- (2) Figure 5 - Front of double-sided disc
- (3) Figure 6 - Back of single or double-sided disc

c. Video Disc Labels.

- (1) Figure 7 - Front of single-sided disc
- (2) Figure 8 - Back of single-sided disc
- (3) Figure 9 - Front of double-sided disc
- (4) Figure 10 - Back of double-sided disc

d. Video Disc Database Label.

- (1) Figure 11 - Diskette label for single-sided disc
- (2) Figure 12 - Diskette label for double-sided disc

e. Computer Tape Label.

- (1) Figure 13 - Magnetic tape label

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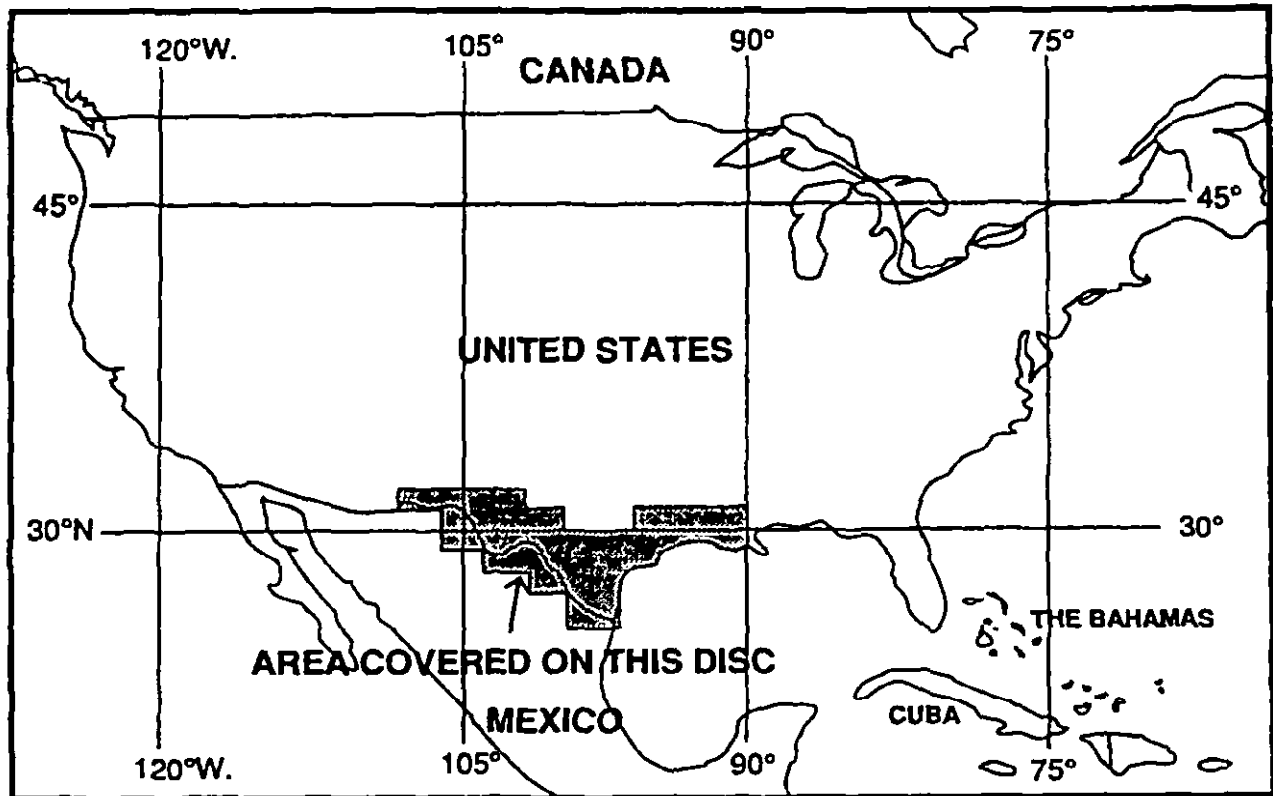


FIGURE 1. Area of Coverage Graphic on Frame 8
(Appears on Video Disc in Color).

NOTES:

1. Open Water Areas: BLUE; DoD-MC&G Standard Printing Color #48134 with 54% screen, or equivalent.
2. Land Areas: YELLOW; DoD-MC&G Standard Printing Color #57936 with 54% screen, or equivalent.
3. Coverage Area: YELLOW; DoD-MC&G Standard Printing Color #57377, or equivalent.
4. Neatline & Type: BLACK; DoD-MC&G Standard Printing Color #58600, or equivalent.
5. All Type Sizes on color monitor must be readable and graphic must be centered on screen. The same medium blue background color shall be used for the border area outside of the neatline (See section 3.1.4.6 of specifications).
6. For double-sided disc, title shall be changed to "AREA COVERED ON THIS SIDE".

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Base maps provided as source material in video disc source packages will vary, depending upon suitability of sources. If 1146 Series sheets are used, the following standards shall be followed:

BASE MAP :

Land Area Background: White.

Open Water Area: Light Gray shall be equivalent to DoD-MC&G

Standard Printing Color #58600

at a 12% Screen. All Map Symbols, Type, and Line Work: Color shall be equivalent to a Gray DoD-MC&G

#58400 at a 49% Screen; all map elements shall be legible on the video monitor screen; drng pat. shown;

Map Projection: Equi-Rectangular; interntl boundaries delin.; cap. 4 maj. cities shown;

Map Scale: Equivalent to section of DMA 1146 Map Series at 1:7,000,000 displayed on video screen.

COVERAGE AREA: Yellow Color shall be readily visible on final image frame; DoD-MC&G Standard Printing Color #57875 equivalent with a semi-transparent appearance allowing line work, type, and map symbols to remain visible underneath.

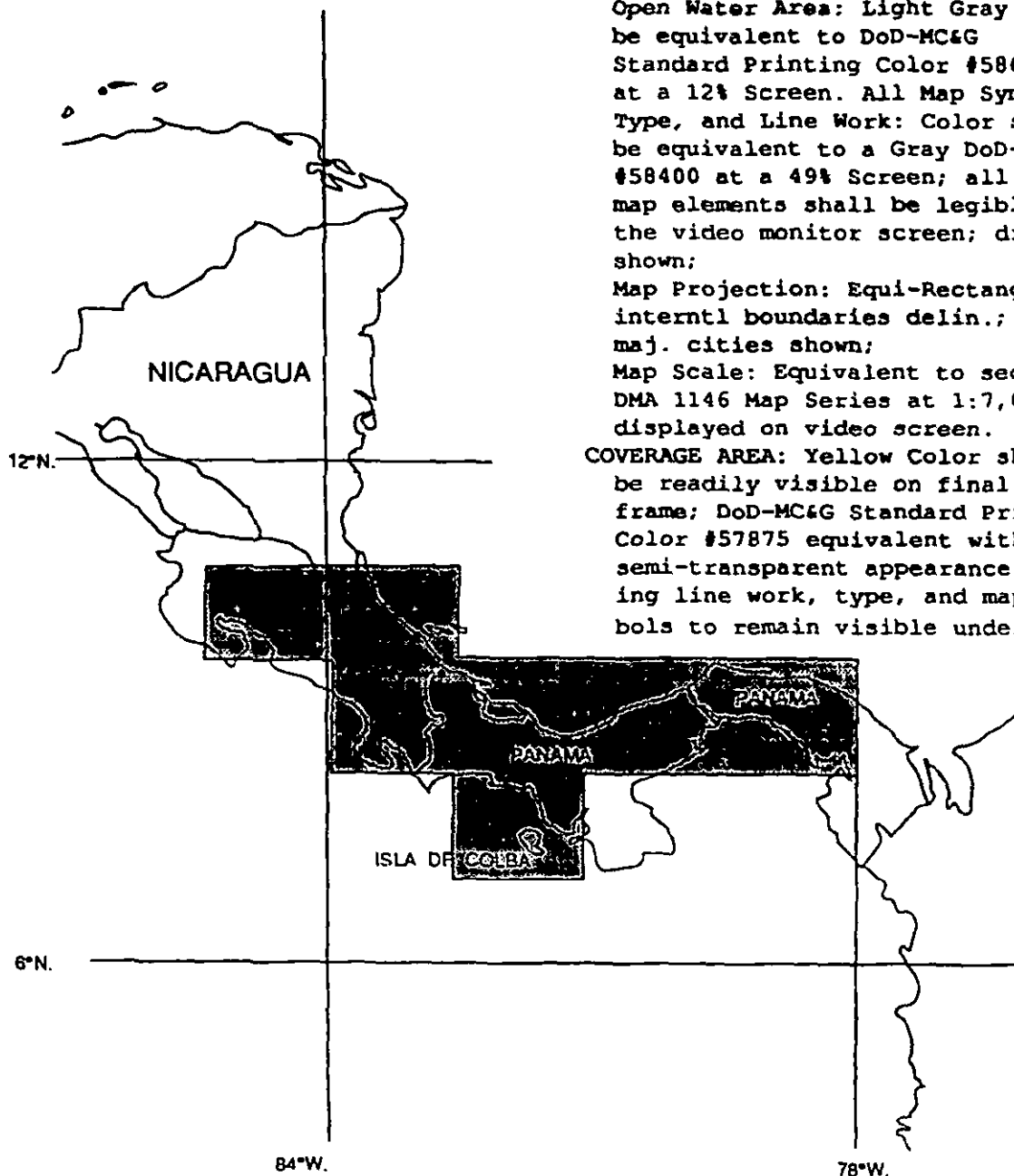


FIGURE 2. Coverage Graphic Showing Maps/Charts at Specified scales
(Appears on Video Disc in Color).

APPENDIX B

Base maps provided as source material in video disc source packages will vary, depending upon suitability of sources. If 1146 Series sheets are used, the following standards shall be followed:

BASE MAP :

Land Area Background: White.

Open Water Area: Light Gray shall be equivalent to DoD-MC&G

Standard Printing Color #58600

at a 12% Screen. All Map Symbols,

Type, and Line Work: Color shall

be equivalent to a Gray DoD-MC&G

#58400 at a 49% Screen; all map

elements shall be legible on

the video monitor screen; drng pat. shown;

Map Projection: Equi-Rectangular;

interntl boundaries delin.; cap. &

maj. cities shown;

Map Scale: Equivalent to section of

DMA 1146 Map Series at 1:7,000,000

displayed on video screen.

COVERAGE AREA: Yellow Color shall be

readily visible on final image

frame; DoD-MC&G Standard Printing

Color #57875 equivalent with a

semi-transparent appearance allow-

ing line work, type, and map sym-

bols to remain visible underneath.

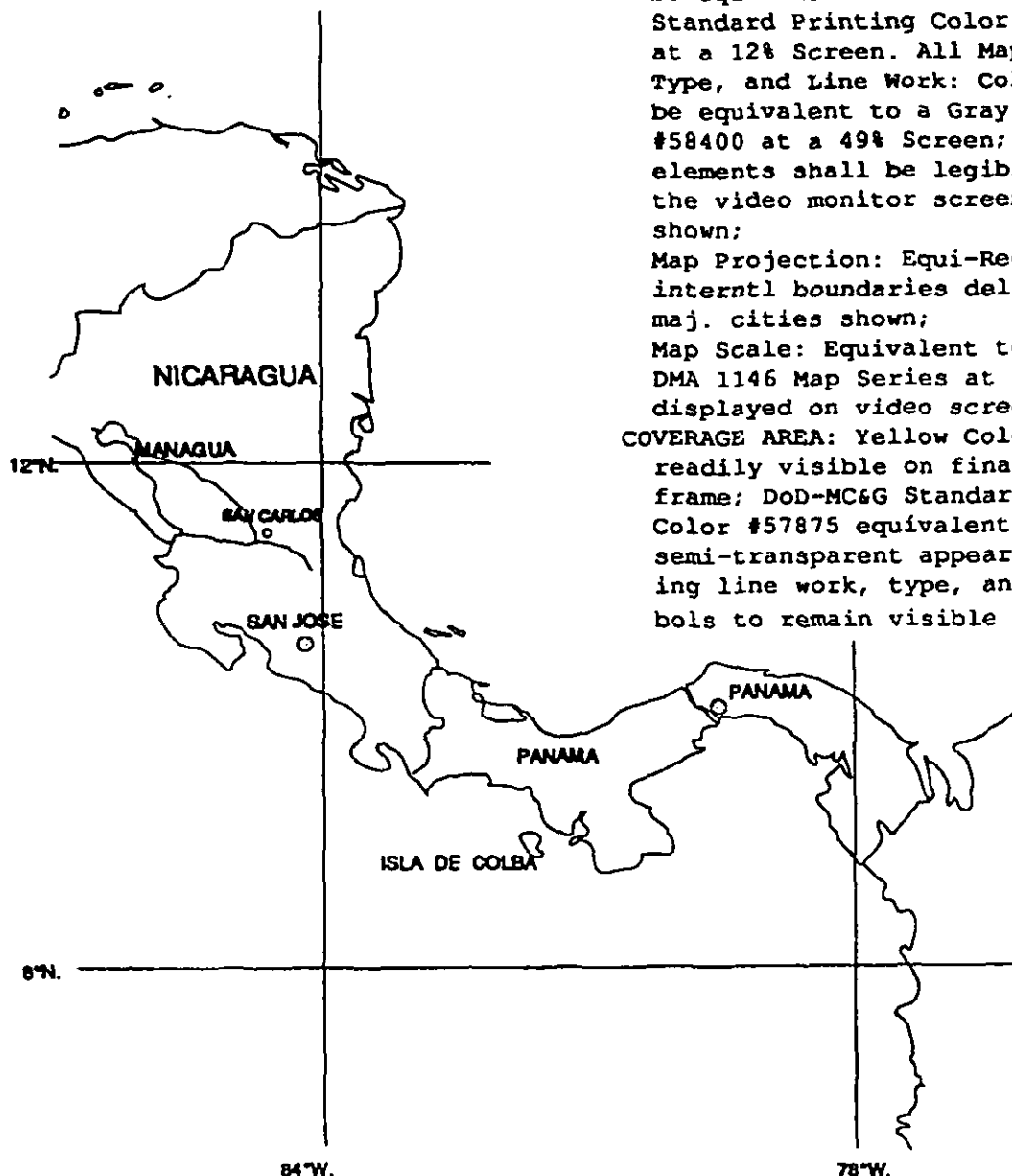


FIGURE 3. Coverage Graphic Showing Large Scale Maps of
Cities and Ports
(Appears on Video Disc in Color).

Any changes to note will be identified in the source package instruction booklet for a specified video disc.

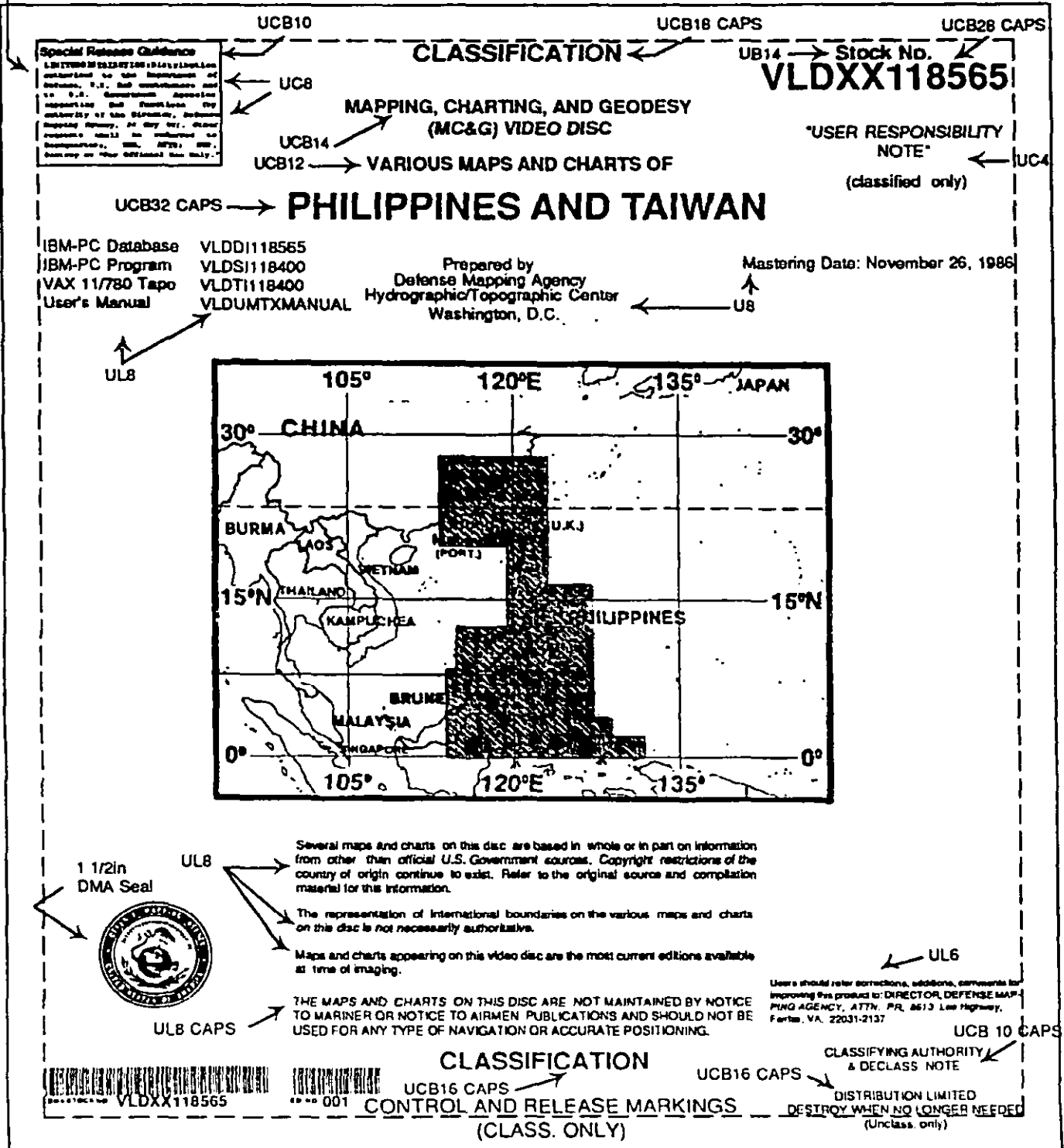


FIGURE 2. Front of Single-Sided Disk.

Any changes to note will be identified in the source package instruction booklet for a specified video disc.

VIDEO DISC JACKET STYLE SHEET (FRONT OF DOUBLE-SIDED DISC)

UCB10		UCB18 CAPS		UCB28 CAPS	
Special Release Guidance		CLASSIFICATION		UB14 → Stock No. VLDXX118565	
UC8		MAPPING, CHARTING, AND GEODESY (MC&G) VIDEO DISC		"USER RESPONSIBILITY NOTE" ← UC4 CAPS (classified only)	
UCB14		VARIOUS MAPS AND CHARTS OF			
UCB12		PHILIPPINES AND TAIWAN (Side 1)			
UCB32 CAPS		MALAYSIA AND WESTERN INDONESIA (Side 2)			
IBM-PC Database VLDI118565		Prepared by Defense Mapping Agency Hydrographic/Topographic Center Washington, D.C.		Mastering Date: November 26, 1985	
IBM-PC Program VLDS118400				↑ U8	
VAX 11/780 Tape VLDI118400					
User's Manual VLDUMTXMANUAL					
UL8					
1 1/2in DMA Seal		<p>Several maps and charts on this disc are based in whole or in part on information from other than official U.S. Government sources. Copyright restrictions of the country of origin continue to exist. Refer to the original source and compilation material for this information.</p> <p>The representation of international boundaries on the various maps and charts on this disc is not necessarily authoritative.</p> <p>Maps and charts appearing on this video disc are the most current editions available at time of imaging.</p> <p>THE MAPS AND CHARTS ON THIS DISC ARE NOT MAINTAINED BY NOTICE TO MARINER OR NOTICE TO AIRMEN PUBLICATIONS AND SHOULD NOT BE USED FOR ANY TYPE OF NAVIGATION OR ACCURATE POSITIONING.</p>			
UL8 CAPS		<p>CLASSIFYING AUTHORITY & DECLASS. NOTE</p> <p>UCB16 CAPS</p> <p>UCB10 CAPS</p> <p>DISTRIBUTION LIMITED DESTROY WHEN NO LONGER NEEDED (Unclass. only)</p>			
		<p>CLASSIFICATION</p> <p>CONTROL AND RELEASE MARKINGS (CLASS. ONLY)</p>			
		<p>DESTROYING VLDXX118565</p>			

FIGURE 3. Front of Double-Sided Disc.

V-89300

ENDIX B

DISC MARKET

SHEET (SINGLE-SIDED DISC)

SX118565

VLC

26 CAPS

UC

UCB18 CAPS UCB28 CAPS
UB14 Stock No. **VLDXX118565**

ING, AND GEODESY
VIDEO DISC

"USER RESPONSIBILITY
NOTE"

(classified only)

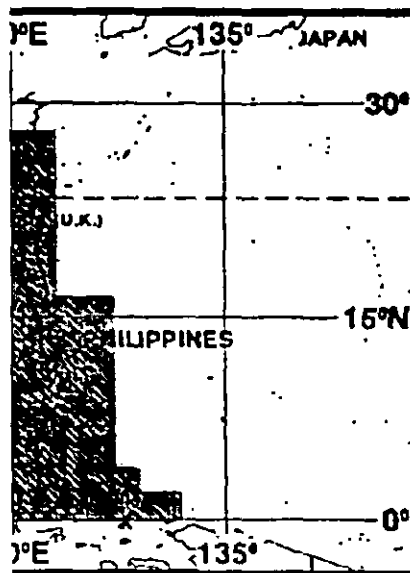
AND CHARTS OF

S AND TAIWAN

by
ing Agency
raphic Center
D.C.

Mastering Date: November 26, 1986

US



are based in whole or in part on information
rent sources. Copyright restrictions of the
lar to the original source and compilation

oundaries on the various maps and charts
are.

disc are the most current editions available

ISC ARE NOT MAINTAINED BY NOTICE
PUBLICATIONS AND SHOULD NOT BE
IN OR ACCURATE POSITIONING.

Users should refer corrections, editions, comments for
improving the product to: DIRECTOR, DEFENSE MAP-
PING AGENCY, ATTN: PR, 8613 Lee Highway,
Falls Church, VA 22031-2137

UCB 10 CAPS

SIFICATION

CLASSIFYING AUTHORITY
& DECLASS NOTE

UCB16 CAPS

RELEASE MARKINGS
(ASS. ONLY)

DISTRIBUTION LIMITED
DESTROY WHEN NO LONGER NEEDED
(Unclass. only)

Single-Sided Disk.

NOTES

at sunlight

tion.

VIDEO DISC LABEL

STYLE SHEET (FRONT OF SINGLE-SIDED DISC)

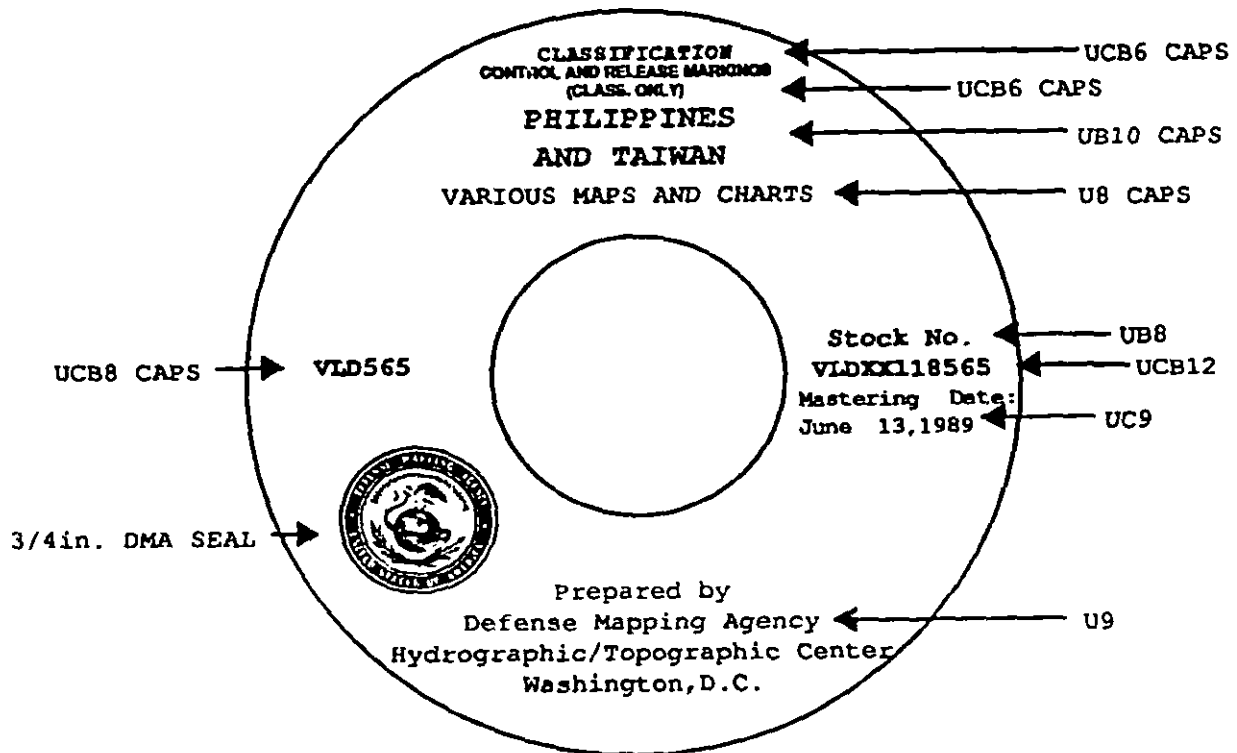


FIGURE 7. Front of Single-Sided Disc.

NOTES:

1. See 30.1.a for explanation of fonts.
2. Size of label is enlarged to show clarity.

APPENDIX B

VIDEO DISC LABEL

STYLE SHEET (BACK OF SINGLE-SIDED DISC)

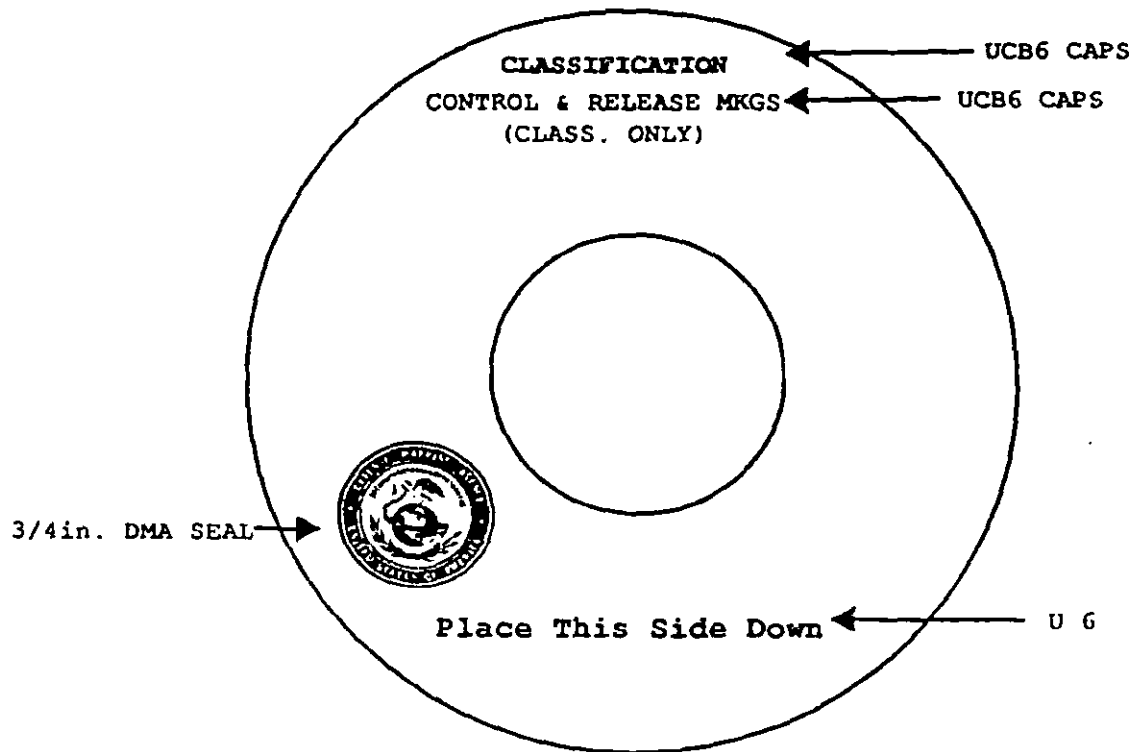


FIGURE 8. Back of Single-Sided Disc.

NOTES:

1. See 30.1.a for explanation of fonts.
2. Size of label is enlarged to show clarity.

VIDEO DISC LABEL

STYLE SHEET (FRONT OF DOUBLE-SIDED DISC)

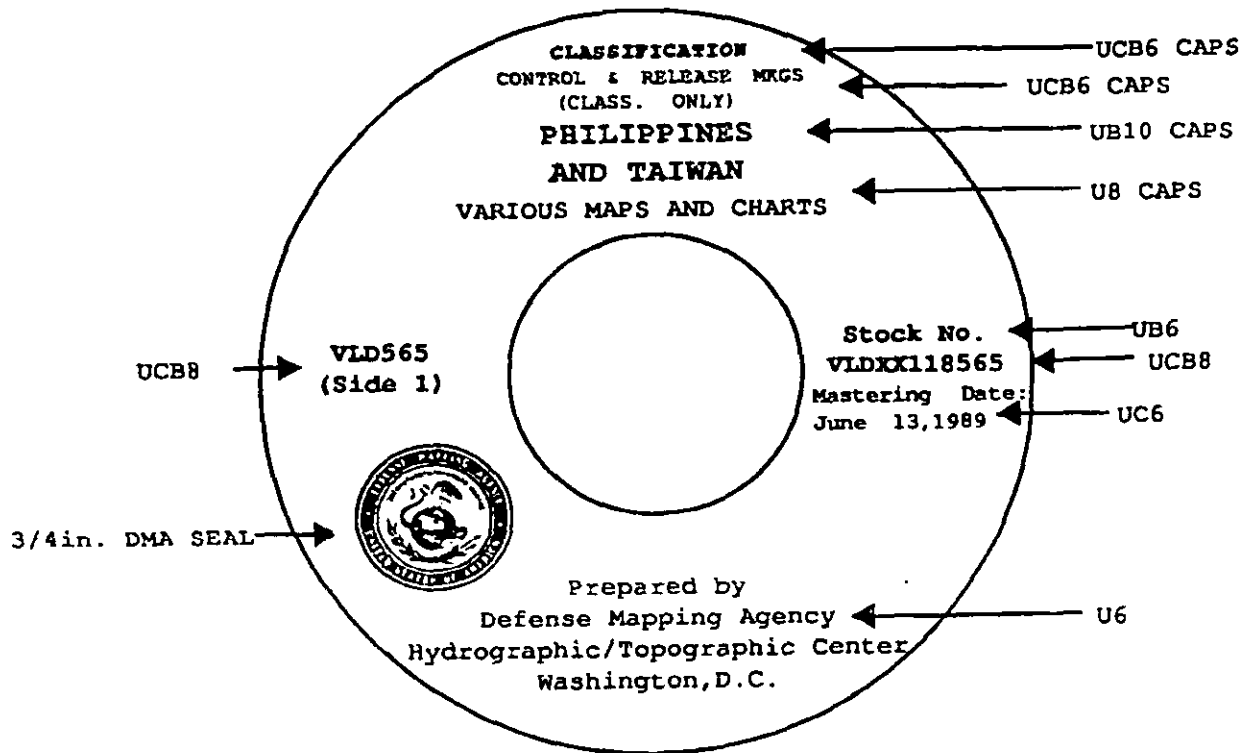


FIGURE 9. Front of Double-Sided Disc.

NOTES:

1. See 30.1.a for explanation of fonts.
2. Size of label is enlarged to show clarity.

VIDEO DISC LABEL

STYLE SHEET (BACK OF DOUBLE-SIDED DISC)

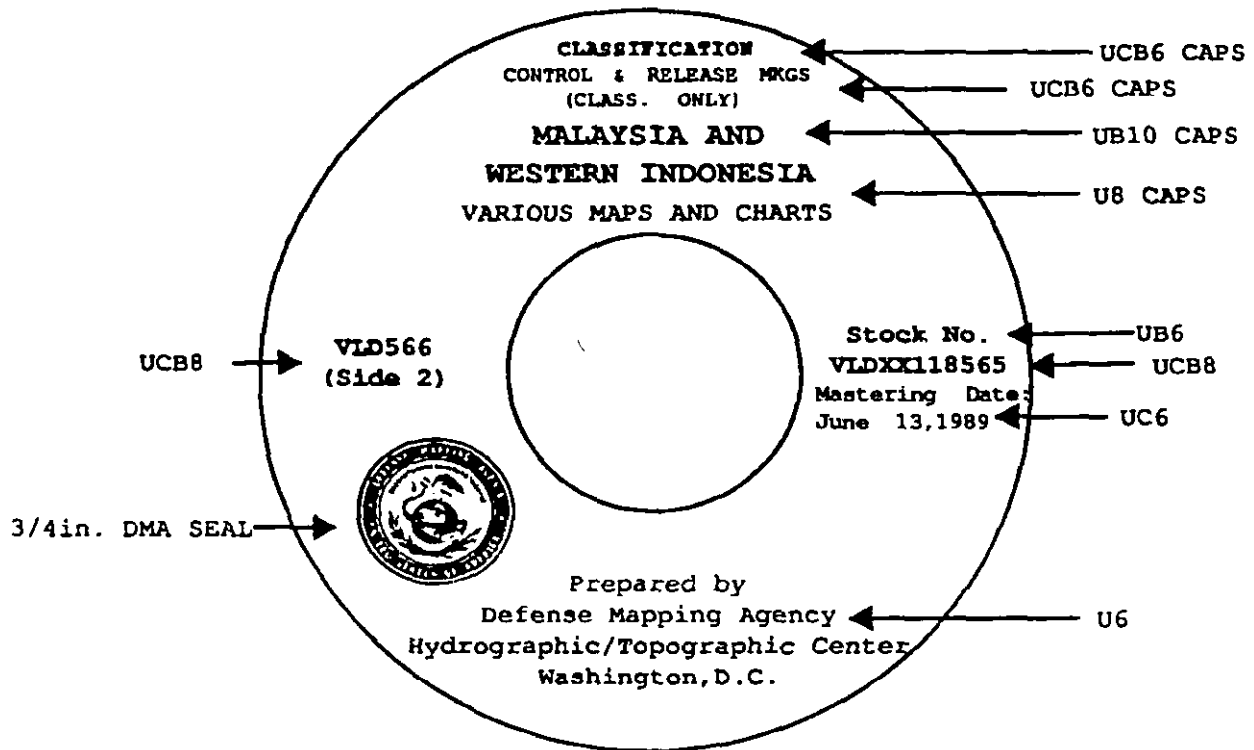
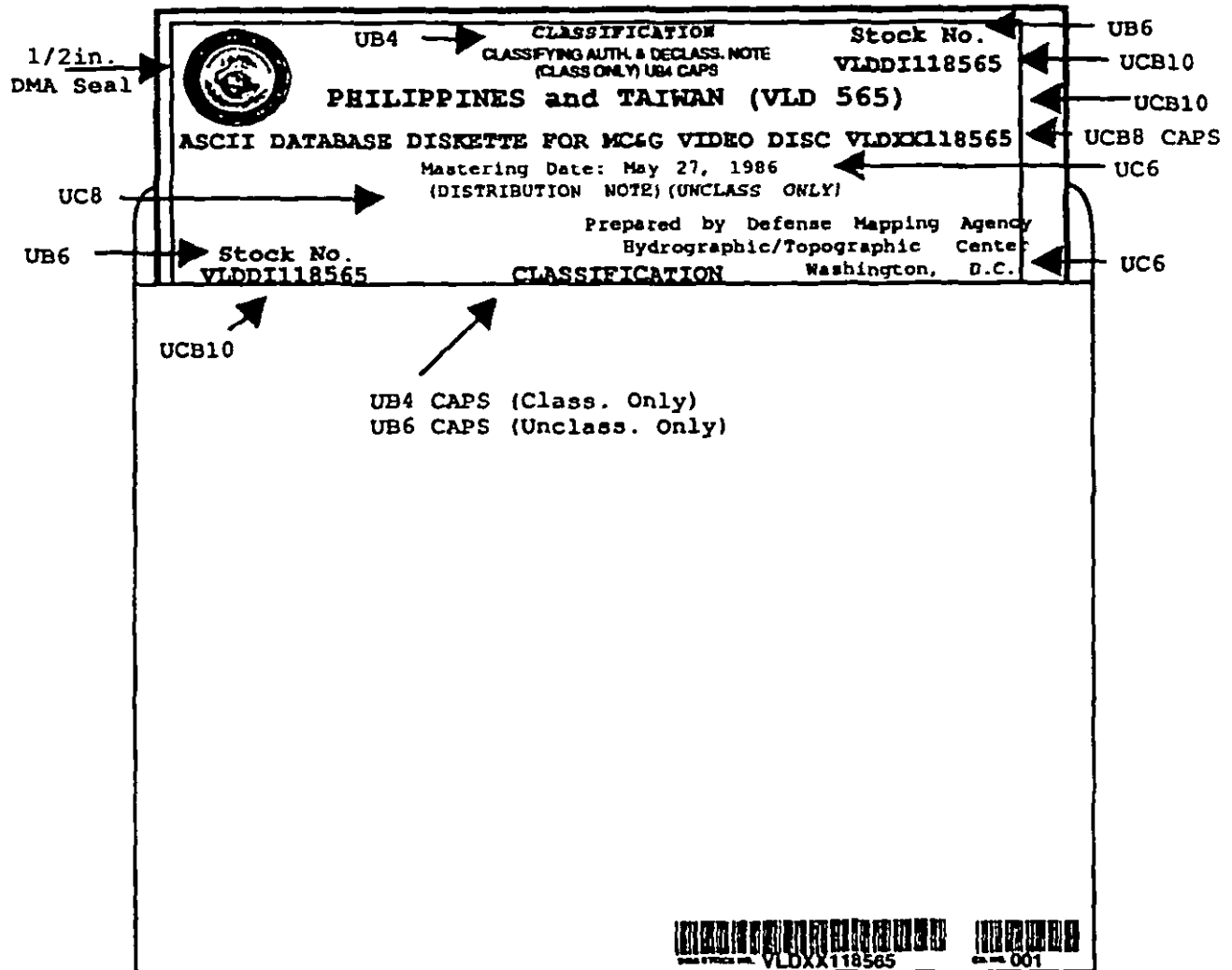


FIGURE 10. Back of Double-Sided Disc.

NOTES:

1. See 30.1.a for explanation of fonts.
2. Size of label is enlarged to show clarity.



DATA STORAGE VLDXX118565 **CALIBR 001**

1. See 30.1.a for explanation of fonts.
2. Size of label is enlarged to show clarity.

VIDEO DISC COMPUTER TAPE LABELS STYLE SHEET

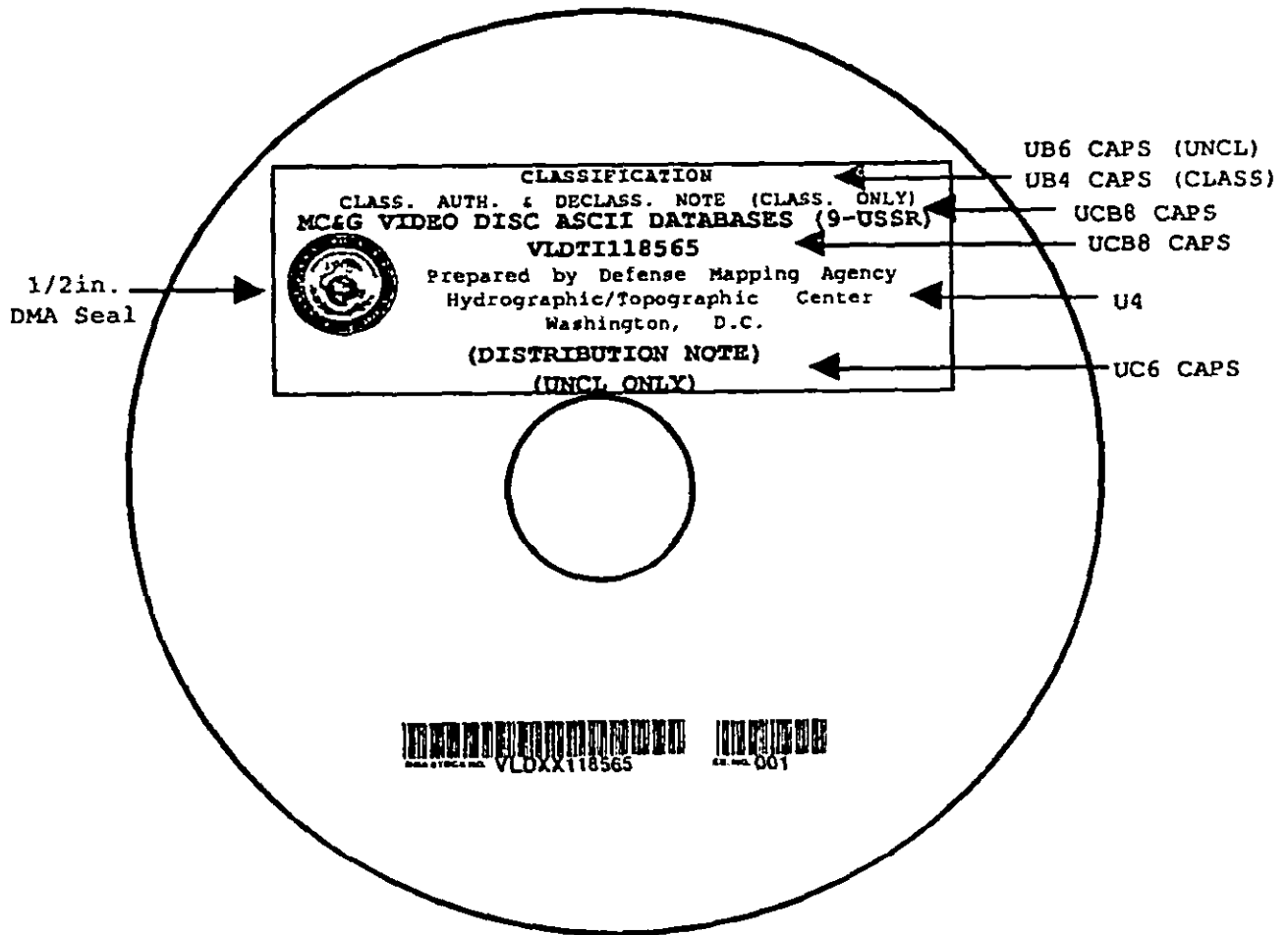


Figure 13. Computer Tape Label

NOTES:

1. See 30.1.a for explanation of fonts.
2. Size of label is enlarged to show clarity.

APPENDIX C

VIDEO DISC MAP INDEXING LIBRARY FUNCTIONS

10. SCOPE

10.1 Scope. These procedures provide application programs with easy-to-use, rapid, and precise indexing functions for access to video disc-stored map products. The library functions are both hardware and application independent. This appendix is a mandatory part of the specification. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS. This section is not applicable to this Appendix.

30. INDEXING LIBRARY FUNCTIONS

a. For optimum performance in carrying out selected library functions an 8087 or 80287 math coprocessor is recommended for IBM PC-based systems.

b. The type definition "ushort" defines a data type capable of representing values in the range of 0 to 54,000. The type definition "long" defines a data type capable of representing values in the range of 0 to $2^{31} - 1$.

(1) NAME

M__AOCGraphic-Find Area of Coverage Graphic

(a) SYNOPSIS

result = M__AOCGraphic(lat, lng, frame)

int	result;	0 = No graphic
		1 = Graphic and point is on graphic
		2 = Graphic and point is not on graphic
long	lat;	Desired latitude
long	lng;	Desired longitude
ushort	*frame;	Frame number of AOC graphic

(b) DESCRIPTION

This function determines whether there is an Area of Coverage (AOC) graphic whose smallest scale is larger than the current map scale. If there is an AOC graphic, then the graphic is selected. If the desired point appears on the graphic, then the frame returned is the frame for the smallest field of view on which the point appears. If the point is not on the graphic, then the largest field of view for the graphic is selected.

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(2) NAME

M_AOCZoom--Zoom function for Area of Coverage Graphics.
 M_IsAOCMap--Test whether map is an Area of Coverage Graphic.

(a) SYNOPSIS

```
frame = M_AOCZoom(lat, lng)
aocMap = M_IsAOCMap()
```

ushort	frame;	0 = Cannot zoom in on this AOC
int	aocMap;	0 = Not an AOC graphic, 1 = AOC graphic
long	lat;	Desired latitude
long	lng;	Desired longitude

(b) DESCRIPTION

This function should only be used when viewing an AOC graphic resulting from the use of M_AOCGraphic. The function attempts to find a map, within the limits defined for the AOC graphic, on which the given geocoordinate appears.

(3) NAME

M_FindFrame--Find image given geocoordinate, scale, and field of view.

(a) SYNOPSIS

```
frame = M_FindFrame(lat, lng, scale, fov)
```

ushort	frame;	0 = Map not available
long	lat;	Desired latitude
long	lng;	Desired longitude
long	scale;	Desired map scale
double	fov;	Desired field of view (inches)

(b) DESCRIPTION

1 This function returns the frame number corresponding to a video disc map frame corresponding to the given geographic coordinate, scale, and field of view.

2 The arguments for scale and field of view are optional and should be set to zero if the system is to use its default selection procedures. Upon successful selection, all current viewing parameters are updated.

3 If the scale specified is zero, then the system attempts to find the smallest scale map on which the geographic point appears.

APPENDIX C

4 If the field of view specified is zero, then the system will use the largest field of view for whatever map is selected.

5 If a nonzero scale is specified, then the procedure will fail unless a map product with a matching scale can be found.

6 If a negative field of view is specified, then the procedure will fail unless a map product with a matching field of view can be found.

(4) NAME

M_FOVHeight-Report current field of view height.

M_FOVWidth-Report current field of view width.

(a) SYNOPSIS

```
fovHeight = M_FovHeight()
fovWidth = M_FovWidth()
```

double	fovHeight;	Current field of view height
double	fovWidth;	Current field of view width

(b) DESCRIPTION

These functions return the current field of view height and width. The field of view is expressed in inches.

(5) NAME

M_FrameWithMostHits-Identify frame with most geocoordinate occurrences.

(a) SYNOPSIS

```
frame = M_FrameWithMostHits(geoCount, geoList)
```

ushort	frame;	0 = No frame with any hits
int	geoCount;	Number of geographic points
GEODEF	geoList;	List of geographic points

(b) DESCRIPTION

1 This function finds the video disc image for the current map on which the most points in the supplied geographic list appears. This function is usually used in conjunction with the M_InMapPolygon procedure to first find the map with the highest density of plottable points and then to select the specific map image on which the most points appear.

2 The procedure operates by first considering the largest enabled field of view. If no points appear on that field of view, then each smaller field of view is examined in turn.

APPENDIX C

```
typedef GEODEF
```

```
    long lat;          /*Latitude geocoordinate */
    long lng;          /*Longitude geocoordinate */
```

(6) NAME

M__GeocoordinateToScreenXY—Convert geocoordinate to display coordinates

(a) SYNOPSIS

```
error = M__GeocoordinateToScreenXY(lat, lng, x, y,)
```

```
int          error;          0 = Point not tranformed
                                1 = Point transformed

long         lat;            Latitude coordinate
long         lng;            Longitude coordinate
int          *x;             Transformed screen coordinate
int          *y;             Transformed screen coordinate
```

(b) DESCRIPTION

This function transforms the given geocoordinate to the corresponding screen coordinates.

(7) NAME

M__GetLatitude—Report current image center latitude.
M__GetLongitude—Report current image center longitude.

(a) SYNOPSIS

```
lat          = M__GetLatitude()
lng          = M__GetLongitude()

long         lat;            Latitude of current frame
long         lng;            Longitude of current frame
```

(b) DESCRIPTION

These functions return the center latitude and longitude of the currently viewed frame. The geocoordinate values are expressed in seconds.

(8) NAME

M__GetLegend—Get legend information

(a) SYNOPSIS

```
M__GetLegend(legendCount, legendFrame)
```

APPENDIX C

int	legendCount;	Number of legend frames
ushort	*legendFrame;	Starting video disc frame number

(b) DESCRIPTION

This function returns information for accessing the legend for the currently viewed map. The information returned is the number of legend frames and the beginning frame number of the legend. The legend frames for a given map appear contiguously on the video disc.

(9) NAME

M__GetMapInformation-Report selected map information

(a) SYNOPSIS

text = M__GetMapInformation(index, mapNumber)

char	*text;	Desired map information
int	index;	Map information index
int	mapNumber;	Map number

(b) DESCRIPTION

This function returns a pointer to an ASCII string containing map information for the specified map. The following map information index elements are defined:

Index	Information	Index	Information
0	Name	16	SE Latitude Corner
1	Projection	17	SE Longitude Corner
2	Scale	18	SW Latitude Corner
3	Edition Date	19	SW Longitude Corner
4	Classification	20	NW Latitude Corner
5	Spheroid	21	NW Longitude Corner
6	Sheet Number	22	NE Latitude Registration Point
7	Number of Field of View	23	NE Longitude Registration Point
8	Frame Center Latitude	24	SE Latitude Registration Point
9	Frame Center Longitude	25	SE Longitude Registration Point
10	Series	26	SW Latitude Registration Point

APPENDIX C

11	Horizontal Datum	27	SW Longitude Registration Point
12	Vertical Datum	28	NW Latitude Registration Point
13	Printing Date	29	NW Longitude Registration Point
14	NE Latitude Corner	30	Country Name
15	NE Longitude Corner		

Country names are typically available for map products of scales 1:250,000 and larger (for DMA video discs). The country name is coded using the Defense Intelligence Agency abbreviations and appears at the end of the map name.

(10) NAME

M_GetScaleIndex—Return index into scale table.

(a) SYNOPSIS

```
scaleindex = M_GetScaleIndex(scale)
```

```
int          scaleIndex;      -1 scale not in table
                                else Index into scale table
```

```
long          scale;          Desired scale
```

(b) DESCRIPTION

1 This function provides access to the internal indexing scale table. The table contains a list of the map scales, sorted by scale, for the current video disc. The function is usually used in conjunction with the M_FindFrame function in locating a point on a selected scale map product.

2 The following structure definition is used to define the globally accessible table: scaleTable. The starting and ending indices are normally not used by application programs.

```
typedef SCALEDEF
```

```
long          scale;          /*Map scale*/
int           start;          /*Starting index in map table*/
int           end;            /*Ending index in map table*/
```

(11) NAME

M_GetSmallerFieldOfView—Find image with smaller field of view.

M_GetLargerFieldOfView—Find image with larger field of view.

(a) SYNOPSIS

```
error = M_GetSmallerFieldOfView(lat, lng, frame)
```

APPENDIX C

int	error;	0 = Field of view not available 1 = Field of view available
long	lat;	Desired latitude
long	lng;	Desired longitude
ushort	*frame;	New video disc frame number

(b) DESCRIPTION

1 These functions determine whether a smaller or larger field of view is available for the map currently being viewed. Field of view is sometimes referred to as the map magnification.

2 A smaller field of view displays a smaller map area but at a greater magnification and with greater resolution. A larger field of view displays a larger map area but at a smaller magnification and correspondingly lower resolution.

(12) NAME

M_GetSpecial-Return special information for current map.

(a) SYNOPSIS

M_GetSpecial(specialCount, specialFrame, specialName)

int	specialCount;	Number of special frames
ushort	*specialFrame;	Starting video disc frame number
char	*specialName;	Pointer to special in- formation name

(b) DESCRIPTION

This function returns information for accessing the special information for the currently viewed map. The information returned is the number of special frames and the beginning frame number of the special information. The special frames for a given map appear contiguously on the video disc.

(13) NAME

M_InitializeMapLibrary-Load and verify map indexing files.

(a) SYNOPSIS

error = M_InitializeMapLibrary(pathName, graphicsFlag)

int	error;	0 = Unable to load indexing files 1 = Loaded map indexing files
char	*pathName;	Path name to map library files
char	graphicsFlag;	Indicates graphics overlay capability

APPENDIX C

(b) DESCRIPTION

1 This function allocates memory and then loads into memory the selected video disc map library indexing files. The indexing files must be present. These files are:

<pathname> .dir	Map library directory
<pathname> .tbl	Map library indexing data
<pathname> .pnt	Map polygon definition points
<pathname> .prj	Map projection data
<pathname> .scn	Map image scan data
<pathname> .cal	Map library calibration data

2 If 'graphicsFlag' is 0 then no attempt is made to open the calibration file. The calibration file contains values that define the relationship of the video disc registration grid to the graphics overlay system. Documentation for the program CALIBMAP should be consulted for the format and contents of the calibration file. (See Appendix C of DMA's "VIDEOMAP User's Manual", June 1987).

(14) NAME

M__InMapPolygon-Determine if point is in a map's polygon.

(a) SYNOPSIS

```
inMap = M__InMapPolygon(lat, lng, fov, mapNumber)
int      inMap;                0 = Point is not in map
                                1 = Point is in map

long      lat;                 Desired latitude
long      lng;                 Desired longitude
double    fov;                 Field of view (inches)
int        mapNumber;           Specified map
```

(b) DESCRIPTION

This function determines whether the given geocoordinate appears within the map polygon for the given map. This function is used internally within the map indexing system but can also be used to determine which of a set of maps best fits a set of geocoordinates.

(15) NAME

M__LargerScale-Find image with larger scale.

M__SmallerScale-Find image with smaller scale.

(a) SYNOPSIS

```
error = M__LargerScale(lat, lng, frame)
error = M__SmallerScale(lat, lng, frame)
```

APPENDIX C

int	error;	0 = Scale not available 1 = Scale available
long	lat;	Desired latitude
long	lng;	Desired longitude
ushort	*frame;	New video disc frame number

(b) DESCRIPTION

1 These functions find a map with a scale smaller or larger than the current map based on the current viewing parameters.

2 If a smaller scale map is found then the smallest field of view for that map is selected. If a larger scale map is found then the largest field of view for that map is selected.

(16) NAME

M_LoadMap--Load a given map for viewing.

(a) SYNOPSIS

frame = M_LoadMap(mapNumber)

ushort	frame;	0 = Map not available
int	mapNumber;	Number of map to load

(b) DESCRIPTION

1 This function loads the map viewing information for the specified map number.

2 The function returns the frame number for the map frame selected for viewing. All map viewing parameters are set accordingly.

3 The function selects the map's largest field of view and sets the view to a position on the center latitude and longitude for the selected map.

(17) NAME

M_MapCount--Report number of maps.
M_MapNumber--Report current map number.
M_MapScale--Report current map scale.

(a) SYNOPSIS

```
mapCount = M_MapCount()
mapNumber = M_MapNumber()
scale = M_MapScale(mapNumber)
```

APPENDIX C

int	mapCount;	Map count for this video disc
int	mapNumber;	Map number of current map
long	scale;	Map scale

(b) DESCRIPTION

These functions return the number of maps for the current video disc and the map number of the currently selected map.

(18) NAME

M_PanMap—Find adjacent map image in specified direction.
 M_PanNorth—Find adjacent map image to North.
 M_PanSouth—Find adjacent map image to South
 M_PanEast—Find adjacent map image to East
 M_PanWest—Find adjacent map image to West.

(a) SYNOPSIS

```
error = M_PanMap(direction, frame)
error = M_PanNorth(frame)
error = M_PanSouth(frame)
error = M_PanEast(frame)
error = M_PanWest(frame)
```

int	error;	0 = No frame in given direction 1 = Frame in given direction
int	direction;	Panning direction
ushort	*frame;	New video disc frame number

(b) DESCRIPTION

These functions pan the currently selected map in the given direction. If the pan operation can be carried out, then the function returns the updated video disc frame number. These procedures attempt to find geographically adjacent map images. Individual functions for each panning direction are available. A single pan function is also available. The pan direction arguments for that function are:

Index	Direction
0	North
1	East
2	South
3	West

(19) NAME

M_ScreenXYToGeocoordinate—Convert screen coordinate to geocoordinate.

APPENDIX C

(a) SYNOPSIS

```
error = M__ScreenXYToGeocoordinate(x, y, lat, lng)
```

int	error;	0 = Point not transferred 1 = Point transferred
int	x;	Screen x coordinate
int	y;	Screen y coordinate
long	*lat;	Transformed latitude coordinate
long	*lng;	Transformed longitude coordinate

(b) DESCRIPTION

1 This function transforms the screen x and y coordinates to corresponding geocoordinates. The function returns zero if the point cannot be transformed.

2 Transformation failure usually occurs when the point falls off the map. This is often true with pointing systems when the user is viewing the edge area of the map or map mosaic.

(20) NAME

M__SetCalibration—Define map calibration parameters.

(a) SYNOPSIS

```
M__SetCalibration(xNW, xNE, xSE, xSW, yNW, yNE, ySE, ySW, cX,  
                  cY)
```

double	xNW;	Calibration ratio
double	xNE;	Calibration ratio
double	xSE;	Calibration ratio
double	xSW;	Calibration ratio
double	yNW;	Calibration ratio
double	yNE;	Calibration ratio
double	ySE;	Calibration Ratio
double	ySW;	Calibration Ratio
int	cX;	Registration grid graphics x coordinate
int	cY;	Registration grid graphics y coordinate

(b) DESCRIPTION

This function establishes the correction factors for registering a graphics overlay system to the video disc map registration grid.

APPENDIX C

(21) NAME

M_SetScreenResolution—Define screen graphic resolution.

(a) SYNOPSIS

M_SetScreenResolution(screenX, screenY)

int	screenX;	Graphic overlay x resolution
int	screenY;	Graphic overlay y resolution

(b) DESCRIPTION

This function establishes the graphic screen x and y resolutions.

(22) NAME

M_SetFov—Set minimum and maximum field of view limits.
M_MinFov—Report current minimum field of view limit.
M_MaxFov—Report current maximum field of view limit.
M_FovCount—Report number of fields of view for current map.
M_MapFov—Report field of view for given map and index.

(a) SYNOPSIS

M_SetFov(minFov, maxFov)
 minFov = M_MinFov()
 maxFov = M_MaxFov()
 fovCount = M_FovCount()
M_MapFov(mapNumber, fovIndex)

long	minFov;	Currently set map minimum field of view
long	maxFov;	Currently set map maximum field of view
int	fovCount;	Number of fields of view for current map
int	mapNumber;	Number of map to be queried
int	fovIndex;	Field of view indexer to be queried

(b) DESCRIPTION

1 M_SetFov sets the library functions to only access maps with a field of view (in inches) between the given minimum and maximum values. The functions M_MinFov and M_MaxFov return the respective current field of view limits.

2 M_FovCount returns the number of fields of view available for the current map.

3 M_MapFov returns the field of view in inches for the given map and field of view index.

APPENDIX C

(23) NAME

M__TryMap-Find nonadjacent geographic image in specified direction.

M__TryNorth-Find nonadjacent geographic image to North.

M__TrySouth-Find nonadjacent geographic image to South.

M__TryEast-Find nonadjacent geographic image to East.

M__TryWest-Find nonadjacent geographic image to West.

(a) SYNOPSIS

```
error = M__TryMap(direction, frame)
```

```
error = M__TryNorth(frame)
```

```
error = M__TrySouth(frame)
```

```
error = M__TryEast(frame)
```

```
error = M__TryWest(frame)
```

int	error;	0 = No frame in given direction
		1 = Frame in given direction

int	direction;	Desired direction
ushort	*frame;	New video disc frame number

(b) DESCRIPTION

1 These functions attempt to find a map frame in the specified direction from the current frame center point. The search operation only succeeds when a map product is found that has a scale and field of view the same as that of the current map product.

2 If the movement operation can be carried out, then the function returns the updated video disc frame number.

3 Individual functions for each movement are available. A single search function is also available. The search direction arguments for that function are:

Index	Direction
0	North
1	East
2	South
3	West

4 These functions assume that a PanMap function has been previously tried and failed.

APPENDIX D

VIDEO DISC MAP DATA BASE FORMAT AND DESCRIPTION

10. SCOPE

10.1 Scope. The indexing database shall, for each map/chart shown on a video disc, include entries that provide general descriptive map information and identifies scan parameters for each field of view imaged. This appendix describes these in detail and gives line by line examples of each. This appendix is a mandatory part of the specification. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS. The information is not applicable to this appendix.

30. DATABASE FORMAT AND DESCRIPTION

30.1 General. An indexing database is included among the video disc map products. It is supplied as an ASCII file that may be processed, in many applications, to create a more efficient map indexing database for use by customer application programs. VIDEOMAP users need to use the software conversion program (TRANSDB) to convert the ASCII files into a VIDEOMAP-readable format. The ASCII file format has been defined in the following manner to promote video disc map product portability among different computer systems.

30.2 Database Description

30.2.1 General.

a. The database is an ASCII file that contains map name, scale, series, sheet, projection, classification, horizontal datum, vertical datum, and other associated map information for each map sheet on a video disc. Each line or record in the database is terminated with a Carriage Return and a Line Feed. Blank lines are used to improve readability.

b. Each map in the database is described in two parts. The first part provides basic descriptive map information; the second part describes the image scans for each field of view for a given map. Examples of each data element are given with each definition, while complete sample database listings appear elsewhere in this document.

30.2.2 Descriptive Map Information. The following data items are used in the given sequence to identify specific descriptive map information. However, any data item not used for a given map, will not appear in the corresponding video disc database file. In such instances, application specific default values should be used.

a. Map. Map number is a numeric identifier for each map product or map element in a database. Numbers are sequential, starting with one. Example:

Map: 4

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b. Series. Map series is an alphanumeric string that identifies the specific map product series. It may be up to nine characters long. Example:

Series: 1150

c. Sheet. Map sheet is an alphanumeric string that identifies the map product sheet number. It may be up to nine characters long. Example:

Sheet: 2

d. Name. Map name is the name or alphanumeric description that is usually used to designate a given map product. It may be up to 39 characters long. Example:

Name: THE WORLD

Optionally, map name may be appended with either of two additional types of information, a country code or an area of coverage (aoc) graphics scale indicator.

(1) The country code may be used to indicate the country within which a given map product exists. It is usually assigned to medium- and large-scale map products. It is represented by a two letter country code designator, as defined in Defense Intelligence Agency Manual 51-3.

Examples:

Name: San Salvador City Graphic/ES

(2) Area of coverage may be used to indicate that the named map is an area of coverage graphic and to specify the scale (or range of scales) of map coverage. Scales are in thousands. The following example identifies an area of coverage graphic for 1:200,000 scale map products.

Name: Coverage at 1:200,000/200

(a) The following example identifies an area of coverage graphic for map products between the scales of 1:1,000 and 1:49,000.

Name: Coverage at Large Scales/1:49

e. Projection. Projection is an alphanumeric string that identifies the type of map projection. Current projection types include:

- (1) Universal Transverse Mercator
- (2) State Plane
- (3) Albers Conical Equal-Area
- (4) Lambert Conformal Conic
- (5) Mercator
- (6) Polar Stereographic
- (7) Polyconic
- (8) Equidistant Conic
- (9) Transverse Mercator
- (10) Stereographic

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- (11) Lambert Azimuthal Equal-Area
- (12) Azimuthal Equidistant
- (13) Gnomonic
- (14) Orthographic
- (15) General Vertical Near-Side Perspective
- (16) Sinusoidal
- (17) Equiarectangular (Plate Carree)
- (18) Miller Cylindrical
- (19) Van Der Grinten II
- (20) Oblique Mercator (Hotline)
- (21) Miller Oblique Oblated Stereographic

Example:

Projection: Transverse Mercator

f. Scale. Scale is the representative map fraction (i.e., scale) denominator. The example refers to a 1:1000000 map product. Example:

Scale: 1000000

- g. South Boundary: latitude geocoordinate.
- h. North Boundary: latitude geocoordinate.
- i. West Boundary: longitude geocoordinate.
- j. East Boundary: longitude geocoordinate.

(1) Boundary values represent the extreme geographic boundaries of a given map sheet. They are often used to determine if a given geocoordinate lies within a given map.

(2) The geocoordinate format is: ddd mm ss.s dir. where ddd is degrees, mm is minutes, ss.s is seconds, and dir is direction. N or S is used for latitude geocoordinate direction and E or W is used for longitude geocoordinate direction. Note that geocoordinates are expressed in tenths of a second. Example:

South Boundary: 40 4 53.82 S
 North Boundary: 23 46 4.66 N
 West Boundary: 78 23 49.61 W
 East Boundary: 46 24 41.56 E

k. Projection Parameters nn: parameter. Projection parameters provide geodetic information for a given map sheet. The specific parameters are determined by the map projection and are the same as those defined in the Geological Survey Cartographic Automatic Mapping Program Documentation-Fifth Edition, which is the basis for cartographic software for use in conjunction with DMA video disc-based maps. Sixteen projection parameters are listed; however, if any is not required for a given projection, it is assumed to be zero. Parameters are floating point numbers that are usually defined in double precision for maximum accuracy. Example:

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Projection Parameter 2: 6378206.400000
 Projection Parameter 3: 0.006769
 Projection Parameter 6: 541800.000000

l. Map Polygon Point nn: polygon x polygon y. Map polygon points contain a given map area's geographic boundary points that have been forward projected into the map's coordinate system. This information can be used by point-in-polygon algorithms to determine if a geocoordinate lies within an imaged area. The points polygon x and polygon y are integers. They are expressed in thousandths of an inch and are in the projection's cartesian system. Up to 20 polygon points may be defined for a given map. (Note that the first and last points will always have the same value.) Example:

Map Polygon Point 1: -18952 11236
 Map Polygon Point 2: -18955 52761
 Map polygon Point 3: 18939 52774
 Map Polygon Point 4: 18622 11255
 Map Polygon Point 5: -18952 11236

m. Horizontal Datum: datum. The horizontal datum for a given map is the reference point from which all other horizontal points on the map are determined. It is an alphanumeric string that may be up to 20 characters in length. Example:

Horizontal Datum: Tokyo

n. Vertical Datum: datum. The vertical datum for a given map is the reference point from which all other vertical points (elevations) on the map are determined. It is an alphanumeric string that may be up to 20 characters in length. Example:

Vertical Datum: Mean Sea Level

o. Edition: edition (edition/producing country). The edition of a map product identifies the specific publishing of the product. It is an alphanumeric string which may be up to 10 characters in length. Example:

Edition: 14

(1) The edition may be appended with a country code to indicate the name of the country that produced the map product. Country codes are defined in Defense Intelligence Agency Manual 51-3. Reference to producing country is omitted for United States produced map products. Example:

Edition: 9/ES

p. Production Date: (Production Code) date. Production codes are the DMA standard production designators (e.g., AX represents Air Information). Date is the production date of the product. It is an alphanumeric string which may be up to nine characters in length. The format for the date may be either month/year or year. Examples:

Production Date: AX 6/84
 Production Date: AX 1984

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q. Classification: classification. Classification is an alphanumeric string that describes the security classification for a given map product. Security classifications include Unclassified, Confidential, and Secret. Example:

Classification: Unclassified

- r. NE Corner Latitude: latitude geocoordinate.
- s. NE Corner Longitude: longitude geocoordinate.
- t. SE Corner Latitude: latitude geocoordinate.
- u. SE Corner Longitude: longitude geocoordinate.
- v. SW Corner Latitude: latitude geocoordinate.
- w. SW Corner Longitude: longitude geocoordinate.
- x. NW Corner Latitude: latitude geocoordinate.
- y. NW Corner Longitude: longitude geocoordinate.

These values are the corner coordinates of a given map sheet. The geocoordinate format is the same as the described under north, south, east, and west boundaries. Example:

NE Corner Latitude:	84 0 0 N
NE Corner Longitude:	149 0 0 W
SE Corner Latitude:	30 0 0 N
SE Corner Longitude:	149 0 0 W
SW Corner Latitude:	30 0 0 N
SW Corner Longitude:	90 0 0 E
NW Corner Latitude:	84 0 0 N
NW Corner Longitude:	90 0 0 E

z. Glossary: Frame Count: Count Starting Frame: frame. This item identifies the location of the video disc frames that contain glossary terms relating to a given map product. It specifies the number of frames (count) and the frame number of the first glossary image (frame). Example:

Glossary: Frame Count: 29 Starting Frame: 34259

aa. This item identifies the location of the video disc frames that contain legend information relating to a given map product. It specifies the total number of frames (count) and the frame number of the first legend image (frame). Example:

Legend: Frame Count: 6 Starting Frame: 17852

bb. Special: Frame Count: Count Starting Frame: Frame Name: title. This item identifies the location of the video disc frames that contain special display information. It specifies the number of frames (count), the frame number of the first image of special information (frame), and literal title that describes the type of special information. Example:

Special: Frame Count: 4 Starting Frame: 980 Name: Landing Areas

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30.2.3 Field of View Scans. Following the general descriptive information for each map are one or more sets of field of view data. Each field of view description begins with a header line and is followed by appropriate scan data lines.

a. Field of View n: Width: width Scans: scans

(1) This item is the header line. It identifies the field of view number, and the width and number of scans for this field of view.

(a) Up to five fields of view may be defined for a given map. They are numbered sequentially from one to the number of fields of view (n).

(b) Width is the horizontal field of view of a map product in inches. It is a floating point number.

(c) Scans is the number of scans for this field of view. It is an integer. Example:

Field of View 1: Width: 4.00 Scans: 3

b. nnn:Lat:geo Lng:geo Step:lng step Frames:count Roll:number
Start:frame

This item is the scan data line. It contains specific data about each scan line. There will be as many scan lines as there are numbers of scans identified in the preceding header line. It identifies the beginning image center coordinate, the longitudinal step factor, the number of frames, the production number, and the beginning film roll number.

(1) nnn is the scan number; it is an integer. The scan number ranges from one to the number of scans for this field of view.

(2) geo is a geocoordinate. Values are required for latitude (Lat:geo) and for longitude (Lng:geo). The geo format is the same as that specified for boundary geocoordinates.

(3) lng step is the longitudinal geographic displacement distance between adjacent scan images on a given scan line. It is expressed in degrees, minutes, and seconds, to hundredths of a second.

(4) count is the number of frames for the scan

(5) number is a data item relating to video disc production. It is not used by indexing systems. It is an integer.

(6) frame is the starting video disc frame number for the scan.

Examples:

```
1: Lat:35 16 54.78 S Lng: 72 0 0.00 W Step: 3 11 56.82 Frames:5 Roll: 163 Start:321
2: Lat:31 55 20.60 S Lng: 72 0 0.00 W Step: 3 11 56.82 Frames:5 Roll: 163 Start:326
3: Lat:28 33 46.42 S Lng: 72 0 0.00 W Step: 3 11 56.82 Frames:6 Roll: 163 Start:331
```


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SAMPLE VIDEO DISC MAP DATABASES

10. SCOPE

10.1 Scope. This appendix shows several examples of actual complete databases. This example is a mandatory part of the specification. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS. This section is not applicable to this Appendix.

30. SAMPLE DATABASES

PAGE 1 February 25, 1987 09:47PM DATABASE.LST

Map: 1
 Name: COVERAGE AT 1:250,000/250
 Projection: Equirectangular (Plate Carree)
 Scale: 7700000

South Boundary:	45	17	56.45 N
North Boundary:	56	39	41.35 N
West Boundary:	2	26	42.88 E
East Boundary:	29	20	34.56 E

Projection Parameter 2: 6370997.000000
 Projection Parameter 6: 54000.000000

Map Polygon Point 1:	-6517	31574
Map Polygon Point 2:	5990	31574
Map Polygon Point 3:	5990	26457
Map Polygon Point 4:	-6517	26457

Classification: Unclassified

NE Corner Latitude:	60	0	0.00 N
NE Corner Longitude:	30	0	0.00 E
SE Corner Latitude:	42	0	0.00 N
SE Corner Longitude:	30	0	0.00 E
SW Corner Latitude:	42	0	0.00 N
SW Corner Longitude:	0	0	0.00 E
NW Corner Latitude:	60	0	0.00 N
NW Corner Longitude:	0	0	0.00 E

Field of View 1:Width:3.00 Scans:5

1:Lat:	47 7 54.01	N	Lng:	7 20 8.64	E	Step:2	26 42.88	Frames:3	Roll:287	Start:29188
2:Lat:	47 7 54.01	N	Lng:	22 0 25.92	E	Step:2	26 42.88	Frames:2	Roll:287	Start:29191
3:Lat:	49 41 50.60	N	Lng:	4 53 25.76	E	Step:2	26 42.88	Frames:9	Roll:287	Start:29193
4:Lat:	52 15 47.20	N	Lng:	4 53 25.76	E	Step:2	26 42.88	Frames:9	Roll:287	Start:29202
5:Lat:	54 49 43.79	N	Lng:	4 53 25.76	E	Step:2	26 42.88	Frames:9	Roll:287	Start:29211

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Field of View 2:Width:16.00 Scans:1

1:Lat: 50 59 12.37 N Lng:14 30 27.79 E Step:0 0 0.00 Frames:1 Roll:287 Start:29220

Map: 2
 Name: THE WORLD
 Projection: Miller Cylindrical
 Scale: 60000000

South Boundary:	89	59	59.00 S
North Boundary:	89	59	59.00 N
West Boundary:	180	0	0.00 W
East Boundary:	179	59	59.00 E

Projection Parameter 2: 6370997.000000
 Projection Parameter 3: 0.006769
 Projection Parameter 4: 0.999600
 Projection Parameter 6: -1800.000000

Map Polygon Point 1:	13547	9634
Map Polygon Point 2:	13527	-9634
Map Polygon Point 3:	-13118	-9623
Map Polygon Point 4:	-13080	9633
Map Polygon Point 5:	13547	9634

Production Date: PX 1985
 Classification: Unclassified

NE Corner Latitude:	75	0	0.00 N
NE Corner Longitude:	165	0	0.00 E
SE Corner Latitude:	75	0	0.00 E
SE Corner Longitude:	165	0	0.00 E
SW Corner Latitude:	75	0	0.00 S
SW Corner Longitude:	180	0	0.00 W
NW Corner Latitude:	75	0	0.00 N
NW Corner Longitude:	180	0	0.00 W

Field of View 1: Width: 3.00 Scans: 13

1:Lat:86	0	0.00 S	Lng:180	0	0.00 W	Step:20	34	7.54	Frames:16	Roll:270	Start:52281
2:Lat:77	0	23.30 S	Lng:180	0	0.00 W	Step:20	34	7.54	Frames:18	Roll:270	Start:52299
3:Lat:65	17	32.05 S	Lng:180	0	0.00 W	Step:20	34	7.54	Frames:18	Roll:270	Start:52317
4:Lat:50	27	15.30 S	Lng:180	0	0.00 W	Step:20	34	7.54	Frames:18	Roll:270	Start:52335
5:Lat:32	27	41.73 S	Lng:180	0	0.00 W	Step:20	34	7.54	Frames:18	Roll:270	Start:52353
6:Lat:11	58	38.55 S	Lng:180	0	0.00 W	Step:20	34	7.54	Frames:18	Roll:270	Start:52371
7:Lat: 9	32	17.71 N	Lng:180	0	0.00 W	Step:20	34	7.54	Frames:18	Roll:270	Start:52389
8:Lat:30	12	7.94 N	Lng:180	0	0.00 W	Step:20	34	7.54	Frames:18	Roll:270	Start:52407
9:Lat:48	30	39.18 N	Lng:180	0	0.00 W	Step:20	34	7.54	Frames:18	Roll:270	Start:52425
10:Lat:63	42	32.12 N	Lng:180	0	0.00 W	Step:20	34	7.54	Frames:18	Roll:270	Start:52443
11:Lat:75	45	41.82 N	Lng:180	0	0.00 W	Step:20	34	7.54	Frames:18	Roll:270	Start:52461
12:Lat:85	2	43.96 N	Lng:180	0	0.00 W	Step:20	34	7.54	Frames:18	Roll:270	Start:52479
13:Lat:90	0	0.00 N	Lng:180	0	0.00 W	Step:20	34	7.54	Frames:18	Roll:270	Start:52497

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Field of View 2: Width: 6.00 Scans: 7

1:Lat:86	0	0.00	S	Lng:180	0	0.00	W	Step:41	7	38.29	Frames:9	Roll:270	Start:52517	
2:Lat:65	18	2.27	S	Lng:180	0	0.00	W	Step:41	7	38.29	Frames:9	Roll:270	Start:52526	
3:Lat:32	29	10.44	S	Lng:180	0	0.00	W	Step:41	7	38.29	Frames:9	Roll:270	Start:52535	
4:Lat:	9	29	50.99	S	Lng:180	0	0.00	W	Step:41	7	38.29	Frames:9	Roll:270	Start:52544
5:Lat:48	29	22.28	N	Lng:180	0	0.00	W	Step:41	7	38.29	Frames:9	Roll:270	Start:52553	
6:Lat:75	45	17.61	N	Lng:180	0	0.00	W	Step:41	7	38.29	Frames:9	Roll:270	Start:52562	
7:Lat:90	0	0.00	N	Lng:180	0	0.00	W	Step:41	7	38.29	Frames:9	Roll:270	Start:52571	

Map: 3
 Series: GNC
 Sheet: 4
 Name: GLOBAL NAVIGATION CHART
 Projection: Lambert Conformal Conic
 Scale: 5000000

South Boundary:	37	23	5.72 N
North Boundary:	71	46	0.51 N
West Boundary:	29	0	46.64 W
East Boundary:	61	6	59.76 E

Projection Parameter 2: 6378206.400000
 Projection Parameter 3: 0.006769
 Projection Parameter 4: 133200.000000
 Projection Parameter 5: 234000.000000
 Projection Parameter 6: 54000.000000
 Projection Parameter 7: 144000.000000

Map Polygon Point 1:	10449	28437
Map Polygon Point 2:	22435	5481
Map Polygon Point 3:	17934	3412
Map Polygon Point 4:	14639	2214
Map Polygon Point 5:	9983	1003
Map Polygon Point 6:	5230	240
Map Polygon Point 7:	377	-29
Map Polygon Point 8:	-4574	149
Map Polygon Point 9:	-9641	926
Map Polygon Point 10:	-14831	2306
Map Polygon Point 11:	-18745	3737
Map Polygon Point 12:	-20053	9995
Map Polygon Point 13:	-11493	26531
Map Polygon Point 14:	-7853	27289
Map Polygon Point 15:	-5369	26528
Map Polygon Point 16:	-2709	26081
Map Polygon Point 17:	511	25907
Map Polygon Point 18:	4090	26282
Map Polygon Point 19:	7498	27166
Map Polygon Point 20:	10449	28437

Edition: 11
 Production Date: AX 1985
 Classification: Unclassified

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NE Corner Latitude: 70 0 0.00 N
 NE Corner Longitude: 50 0 0.00 E
 SE Corner Latitude: 40 0 0.00 N
 SE Corner Longitude: 50 0 0.00 E
 SW Corner Latitude: 40 0 0.00 N
 SW Corner Longitude: 13 0 0.00 W
 NW Corner Latitude: 65 0 0.00 N
 NW Corner Longitude: 20 0 0.00 W

Legend: Frame Count: 6 Starting Frame: 29278

Field of View 1: Width: 3.00 Scans: 17

1:Lat:40	0	0.00 N	Lng:13	13	53.70 W	Step:2	15	22.10	Frames:29	Roll:278	Start:	781
2:Lat:41	49	35.91 N	Lng:15	29	15.80 W	Step:2	15	22.10	Frames:30	Roll:278	Start:	810
3:Lat:43	39	38.06 N	Lng:17	44	37.90 W	Step:2	15	22.10	Frames:31	Roll:278	Start:	840
4:Lat:45	30	9.67 N	Lng:20	0	0.00 W	Step:2	15	22.10	Frames:32	Roll:278	Start:	871
5:Lat:47	20	57.10 N	Lng:20	0	0.00 W	Step:2	15	22.10	Frames:32	Roll:278	Start:	903
6:Lat:49	12	0.03 N	Lng:20	0	0.00 W	Step:2	15	22.10	Frames:32	Roll:278	Start:	935
7:Lat:51	3	6.33 N	Lng:20	0	0.00 W	Step:2	15	22.10	Frames:32	Roll:278	Start:	967
8:Lat:52	54	16.83 N	Lng:20	0	0.00 W	Step:2	15	22.10	Frames:32	Roll:278	Start:	999
9:Lat:54	45	18.86 N	Lng:20	0	0.00 W	Step:2	15	22.10	Frames:32	Roll:278	Start:	1031
10:Lat:56	36	5.37 N	Lng:20	0	0.00 W	Step:2	15	22.10	Frames:32	Roll:278	Start:	1063
11:Lat:58	26	30.68 N	Lng:20	0	0.00 W	Step:2	15	22.10	Frames:32	Roll:278	Start:	1095
12:Lat:60	16	30.61 N	Lng:20	0	0.00 W	Step:2	15	22.10	Frames:32	Roll:278	Start:	1127
13:Lat:62	5	53.69 N	Lng:20	0	0.00 W	Step:2	15	22.10	Frames:32	Roll:278	Start:	1159
14:Lat:63	54	33.32 N	Lng:20	0	0.00 W	Step:2	15	22.10	Frames:32	Roll:278	Start:	1191
15:Lat:65	42	17.05 N	Lng:20	0	0.00 W	Step:2	15	22.10	Frames:32	Roll:278	Start:	1223
16:Lat:67	28	55.91 N	Lng:20	0	0.00 W	Step:2	15	22.10	Frames:32	Roll:278	Start:	1255
17:Lat:69	14	22.55 N	Lng:15	29	15.80 W	Step:4	30	44.20	Frames:15	Roll:278	Start:	1287

Field of View 2: Width: 6.00 Scans: 9

1:Lat:40	0	0.00 S	Lng:15	29	36.68 W	Step:4	30	23.32	Frames:15	Roll:278	Start:	1304
2:Lat:43	39	40.00 S	Lng:20	00	0.00 W	Step:4	30	23.32	Frames:16	Roll:278	Start:	1319
3:Lat:47	20	57.10 S	Lng:20	00	0.00 W	Step:4	30	23.32	Frames:16	Roll:278	Start:	1335
4:Lat:51	3	10.09 S	Lng:20	00	0.00 W	Step:4	30	23.32	Frames:16	Roll:278	Start:	1351
5:Lat:54	45	22.76 S	Lng:20	00	0.00 W	Step:4	30	23.32	Frames:16	Roll:278	Start:	1367
6:Lat:58	26	39.92 S	Lng:20	00	0.00 W	Step:4	30	23.32	Frames:16	Roll:278	Start:	1383
7:Lat:62	6	1.06 S	Lng:20	00	0.00 W	Step:4	30	23.32	Frames:16	Roll:278	Start:	1399
8:Lat:65	42	22.41 S	Lng:20	00	0.00 W	Step:4	30	23.32	Frames:16	Roll:278	Start:	1415
9:Lat:69	14	29.64 S	Lng:20	00	0.00 W	Step:9	0	46.64	Frames: 8	Roll:278	Start:	1431

Map: 4
 Series: 1501
 Sheet: NL 32-02
 Name: ZURICH/GC
 Projection: Transverse Mercator
 Scale: 250000

South Boundary:	46	49	43.05 N
North Boundary:	48	7	50.93 N
West Boundary:	8	0	32.76 E
East Boundary:	10	40	54.60 E

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Projection Parameter 2: 6378388.000000
 Projection Parameter 3: 0.006769
 Projection Parameter 4: 0.999600
 Projection Parameter 6: 32550.000000

Map Polygon Point 1: 11256 837269
 Map Polygon Point 2: 11419 819812
 Map Polygon Point 3: -12467 819778
 Map Polygon Point 4: -12215 837239
 Map Polygon Point 5: 11256 837269

Horizontal Datum: EUROPEAN
 Vertical Datum: MEAN SEA LEVEL
 Edition: 3
 Production Date: ZY 1981
 Classification: Unclassified

NE Corner Latitude: 48 0 0.00 N
 NE Corner Longitude: 10 0 0.00 E
 SE Corner Latitude: 47 0 0.00 N
 SE Corner Longitude: 10 0 0.00 E
 SW Corner Latitude: 47 0 0.00 N
 SW Corner Longitude: 8 0 0.00 E
 NW Corner Latitude: 48 0 0.00 N
 NW Corner Longitude: 8 0 0.00 E

Glossary: Frame Count: 1 Starting Frame: 53533
 Legend: Frame Count: 5 Starting Frame: 29391

Field of View 1: Width: 3.00 Scans: 12

1:Lat:47 0 0.00 N Lng:8 8 3.99 E Step:0 7 31.03 Frames:16 Roll:284 Start:36360
 2:Lat:47 5 23.76 N Lng:8 8 3.99 E Step:0 7 31.03 Frames:16 Roll:284 Start:36425
 3:Lat:47 10 47.34 N Lng:8 8 3.99 E Step:0 7 31.03 Frames:16 Roll:284 Start:36490
 4:Lat:47 16 10.90 N Lng:8 8 3.99 E Step:0 7 31.03 Frames:16 Roll:284 Start:36555
 5:Lat:47 21 34.47 N Lng:8 8 3.99 E Step:0 7 31.03 Frames:16 Roll:284 Start:36620
 6:Lat:47 26 58.03 N Lng:8 8 3.99 E Step:0 7 31.03 Frames:16 Roll:284 Start:36685
 7:Lat:47 32 21.58 N Lng:8 8 3.99 E Step:0 7 31.03 Frames:16 Roll:284 Start:36750
 8:Lat:47 37 45.13 N Lng:8 8 3.99 E Step:0 7 31.03 Frames:16 Roll:284 Start:36815
 9:Lat:47 43 8.68 N Lng:8 8 3.99 E Step:0 7 31.03 Frames:16 Roll:284 Start:36880
 10:Lat:47 48 32.42 N Lng:8 8 3.99 E Step:0 7 31.03 Frames:16 Roll:284 Start:36945
 11:Lat:47 53 55.95 N Lng:8 8 3.99 E Step:0 7 31.03 Frames:16 Roll:284 Start:37010
 12:Lat:47 59 19.48 N Lng:8 8 3.99 E Step:0 7 31.03 Frames:16 Roll:284 Start:37075

Field of View 2:Width: 6.00 Scans: 6

1:Lat:47 0 0.00 N Lng: 8 15 34.85 E Step:0 15 2.05 Frames: 8 Roll:284 Start:39635
 2:Lat:47 10 47.75 N Lng: 8 15 34.85 E Step:0 15 2.05 Frames: 8 Roll:284 Start:39668
 3:Lat:47 21 35.29 N Lng: 8 15 34.85 E Step:0 15 2.05 Frames: 8 Roll:284 Start:39701
 4:Lat:47 32 22.81 N Lng: 8 15 34.85 E Step:0 15 2.05 Frames: 8 Roll:284 Start:39734
 5:Lat:47 43 10.32 N Lng: 8 15 34.85 E Step:0 15 2.05 Frames: 8 Roll:284 Start:39767
 6:Lat:47 53 57.80 N Lng: 8 15 34.85 E Step:0 15 2.05 Frames: 8 Roll:284 Start:39800

APPENDIX E

Field of View: 3 Width: 8.00 Scans: 5

1:Lat:47	0	0.00	N	Lng: 8	20	35.49	E	Step:0	20	2.73	Frames: 6	Roll:284	Start:40442
2:Lat:47	14	23.73	N	Lng: 8	20	35.49	E	Step:0	20	2.73	Frames: 6	Roll:284	Start:40467
3:Lat:47	28	47.25	N	Lng: 8	20	35.49	E	Step:0	20	2.73	Frames: 6	Roll:284	Start:40492
4:Lat:47	43	10.73	N	Lng: 8	20	35.49	E	Step:0	20	2.73	Frames: 6	Roll:284	Start:40517
5:Lat:47	57	34.18	N	Lng: 8	20	35.49	E	Step:0	20	2.73	Frames: 6	Roll:284	Start:40542

APPENDIX F

SCREEN SAMPLES FROM MC&G VIDEO DISC INDEXING PROGRAM

10. SCOPE

10.1 Scope. This appendix provides examples of screens that VIDEOMAP users would see displayed on their system monitors. This appendix is a mandatory part of the specification. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS. This section is not applicable to this Appendix.

30. SCREEN SAMPLES

FIGURE 14. VIDEOMAP Opening Message.

FIGURE 15. Typical Map List Display.

FIGURE 16. Main Command Menu.

FIGURE 17. Main Command Menu After Map Selection.

FIGURE 18. Title Information Display (Pg. F-6)

FIGURE 19. Map List Showing Coverage Graphics.

FIGURE 20. Coverage Graphic Menu Display.

FIGURE 21. Geocoordinate Request Entry Process.

FIGURE 22. Record a Map Command Text Display.

FIGURE 23. Help Text (F1)

MC&G Video Disc Indexing Program

VERSION: 1.37
Released: 1 December 1987

Distributed By:

Defense Mapping Agency
Hydrographic/Topographic Center
Washington, D.C.

Press any key to advance through introductory frames.

FIGURE 14. VIDEQMAP Opening Message.

APPENDIX F

Defense Mapping Agency MC&G Video Disc Indexing System				
FI: Exit	Name	Series	Sheet	Scale
RETURN to select highlighted map for viewing	OSTROVA	1501	NM 34-07	250,000
	NOWY SACZ	1501	NM 34-08	250,000
	DROGOBYCH	1501	NM 34-09	250,000
	MIKACHEVO	1501	NM 34-12	250,000
↑ Bar Up	LUTSK	1501	NM 35-04	250,000
↓ Bar Down	LEEWARDEN	1501	NN 31-09	250,000
	AMSTERDAM	1501	NN 31-12	250,000
PGUP: Page Up	FLEMSBURG	1501	NN 32-05	250,000
PGDN: Page Down	KIEL	1501	NN 32-06	250,000
	GRONINGEN	1501	NN 32-07	250,000
HOME: First Page	BREMEN	1501	NN 32-08	250,000
END: Last Page	HAMBURG	1501	NN 32-09	250,000
	ENSCHDEDE	1501	NN 32-10	250,000
Page 6 of 11	HANNOVER	1501	NN 32-11	250,000
Press ? For Help				
Press ESC to Exit From Program				

FIGURE 15. Typical Map List Display.

Defense Mapping Agency MC&G Video Disc Indexing System	
<p>F1: Zoom In - Smaller FOV F2: Zoom Out - Larger FOV F3: Find Next Larger Scale F4: Find next Smaller Scale F5: Geocoordinate Request F6: Display Map List F7: Display Legend Information F8: Display Glossary Information F9: Display Title Information F10: Disable Coverage Graphics</p> <p>R: Record A Map J: Jump To Map</p> <p>↑ North ↓ South → East ← West</p>	<p>Name: Series: Sheet: Scale: Field:</p> <p>Center Coordinates:</p> <p>Cursor Coordinates:</p> <p>Classif: Country:</p>
<p>Press ? For Help Press ESC to Exit From Program</p>	

FIGURE 16. Main Command Menu.

Defense Mapping Agency MC&G Video Disc Indexing System	
F1: Zoom In - Smaller FOV F2: Zoom Out - Larger FOV F3: Find Next Larger Scale F4: Find next Smaller Scale F5: Geocoordinate Request F6: Display Map List F7: Display Legend Information F8: Display Glossary Information F9: Display Title Information F10: Disable Coverage Graphics R: Record A Map J: Jump To Map ↑ North ↓ South → East ← West	Name: AMSTERDAM Series: 1501 Sheet: NN 31-12 Scale: 250,000 Field: 8.0 Center Coordinates: 52° 48' 40" N 5° 5' 9" E Cursor Coordinates: 52° 44' 4" N 5° 9' 38" E Classif: Unclassified Country: Netherlands
Press ? For Help Press ESC to Exit From Program	

FIGURE 17. Main Command Menu After Map Selection.

Defense Mapping Agency MC&G Video Disc Indexing System	
Series: 1501 Sheet Number: NN 31-12 Sheet Name: AMSTERDAM Scale: 250,000 Projection: Transverse Mercator Horiz. Datum: EUROPEAN Vert. Datum: MEAN SEA LEVEL Spheroid: International Edition: 3 Date: Map Information 1985 Classification: Unclassified Fields of View: 3.0 6.0 8.0	<p style="text-align: center;">Sheet Corners</p> <p> N West: 53° 0' 0" N 4° 0' 0" E N East: 53° 0' 0" N 6° 0' 0" E S East: 52° 0' 0" N 6° 0' 0" E S West: 52° 0' 0" N 4° 0' 0" E </p> <p style="text-align: center;">Registration Points</p> <p> N West: 52° 48' 11" N 4° 48' 12" E N East: 52° 48' 11" N 5° 22' 6" E S East: 52° 33' 7" N 5° 22' 0" E S West: 52° 33' 7" N 4° 48' 18" E </p>
Press any key to continue	

FIGURE 18. Title Information Display.

Defense Mapping Agency MC&G Video Disc Indexing System				
F1: Exit	Name	Series	Sheet	Scale
RETURN to select highlighted map for viewing	COVERAGE OF VLDXX118511			
	COVERAGE AT 1:250,000			
	COVERAGE AT 1:50,000			
	COVERAGE AT LARGE SCALES			
↑ Bar Up	THE WORLD			60,000,000
↓ Bar Down	THE WORLD	1145		30,000,000
	THE WORLD	1150	3	14,000,000
PGUP: Page Up	GLOBAL NAVIGATION CHART	GNC	4	5,000,000
PGDN: Page Down	JET NAVIGATION CHART	JNC	8	2,000,000
	JET NAVIGATION CHART	JNC	9	2,000,000
HOME: First Page	JET NAVIGATION CHART	JNC	10	2,000,000
END: Last Page	JET NAVIGATION CHART	JNC	21	2,000,000
	JET NAVIGATION CHART	JNC	22	2,000,000
	JET NAVIGATION CHART	JNC	32	2,000,000
Page 1 of 11				
Press ? For Help				
Press ESC to Exit From Program				

FIGURE 19. Map List Showing Coverage Graphics.

Defense Mapping Agency MC&G Video Disc Indexing System	
<p>F1: Exit From Coverage Graphic</p> <p>F2: Zoom In - Smaller FOV</p> <p>F3: Zoom Out - Larger FOV</p> <p>This is an area of coverage graphic. You can change fields of view on the graphic. Maps corresponding to this scale of coverage can be accessed by zooming in from the smallest field of view.</p> <p>↓ North ↑ South → East ← West</p>	<p>Name: COVERAGE AT 1:250,000</p> <p>Center Coordinates: 51° N 15° E</p> <p>Cursor Coordinates: 51° 7' 1" N 14° 18' 31" E</p>
<p>Press ? For Help Press ESC to Exit From Program</p>	

FIGURE 20. Coverage Graphic Menu Display.

Defense Mapping Agency MC&G Video Disc Indexing System	
F1: Zoom In - Smaller FOV F2: Zoom Out - Larger FOV F3: Find Next Larger Scale F4: Find next Smaller Scale F5: Geocoordinate Request F6: Display Map List F7: Display Legend Information F8: Display Glossary Information F9: Display Title Information F10: Disable Coverage Graphics R: Record A Map J: Jump To Map ↑ North ↓ South → East ← West	Name: AMSTERDAM Series: 1501 Sheet: NN 31-12 Scale: 250,000 Field: 8.0 Center Coordinates: 52° 48' 48" N 5° 5' 9" E Cursor Coordinates: 52° 44' 4" N 5° 9' 38" E Classif: Unclassified Country: Netherlands
Enter Latitude: 054° 24' 00" N	Enter Scale: 00250000
Enter Longitude: 006° 12' 38" E	Enter FOV (Inches): 06

FIGURE 21. Geocoordinate Request Entry Process.

Defense Mapping Agency MC&G Video Disc Indexing System				
F1:	Exit	Recorded Positions		
F2:	Erase Positions	Latitude	Longitude	Scale FOV
1:	Record Position ->	1. 52° 18' 59" N	10° 4' 25" E	1000000 6.0
2:	Record Position ->	2. 49° 58' 36" N	29° 46' 31" E	500000 3.0
3:	Record Position ->	3. 51° 28' 46" N	9° 4' 4" E	250000 8.0
4:	Record Position ->	4. _____	_____	_____
5:	Record Position ->	5. _____	_____	_____
6:	Record Position ->	6. _____	_____	_____
7:	Record Position ->	7. _____	_____	_____
8:	Record Position ->	8. _____	_____	_____
Press ? For Help Press ESC To Exit From Program				

FIGURE 22. Record a Map Command Text Display.

Defense Mapping Agency MC&G Video Disc Indexing System	
<p>F7: Display Legend Information</p> <p>Displays the legend for the current map. The Page Up and Page Down keys are used to scroll through the legend information.</p> <p>F8: Display Glossary Information</p> <p>Displays the glossary for current map. The Page Up and Page Down keys are used to scroll through the glossary information.</p> <p>F9: Display Title Information</p> <p>Displays map information including spheroid, datums, map sheet corner coordinates, frame registration points, and available fields of view.</p> <p>Page 3 of 6</p>	
F1: Exit	PGUP: Page Up Help PGDN: Page Down Help

Figure 23. Help Text.

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CONCLUDING MATERIAL

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Air Force - O9

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(project MCGT 0024)

User activities:

Air Force - O9

Army - CDRUSAETL-CEETL-TC-SA;
CDR25THINFDIV-APVG-DS; HQWESTCOM-APIN-MCG
USAATCAAS-ASQ-AS-AI; USAASDE

Navy - HQFMFEUR-USNAVACTS-UK;
CINCUSNAVEUR-N39, ECJ2-T

Marine Corps - CGFMFLANT-AC/S;
CGFMFPAC-AC/S

DMA - DMAAC-DAP; LOU-LUA;
DMAHTC - VITAL RECORDS MANAGEMENT

NSA - NSA-GIC-T15141

TVA - TVA-NSB-HB 2N200A

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